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THE

SANITARIAN,

A MONTHLY MAGAZINE

DEVOTED TO THE

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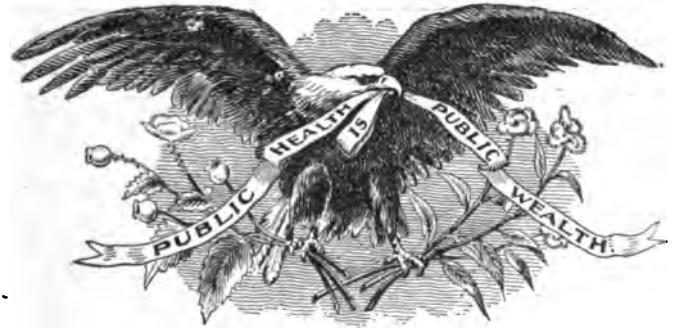

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THE SANITARIAN.

JULY, 1898.

NUMBER 344.

HOME SANITATION.*

BY MRS. ESTHER A. POWNAL, of Richborough, Pa.

The sanitary arrangements of our homes is a subject of such great importance that I feel honored to have been chosen to present it to you. At the same time, when the request of your committee reached me, I wondered what I knew practically about the heating, lighting and ventilating of a house. Everyone admits the necessity for heat and provides for it in some way; also, that light, either natural or artificial, must be had for us to see, and that sunlight is requisite for the health and growth of plants and animals; but that it is indispensable for the health and growth of the human animal all do not seem to know, and the value of fresh air is appreciated by but a few.

For a long time I have known the importance of God's two great blessings—sunshine and fresh air—and have done what I could with the means at my command to let them into the various houses which I was obliged to spend most of my time in. But to tell an intelligent audience, like that which always gathers at a farmers' institute, the best mode of building their houses or of rendering those already built more healthful, seemed an impossibility to one who had no knowledge of architecture, building or plumbing, and I was about to decline on the plea of inability when I thought of St. Paul, who said, "If a woman would learn anything, let her ask her husband at home," and thinking mine could fill the bill in this respect, I did so, and when he was exhausted he referred me to Dr. George Wilson's books on "Healthy Life and Healthy Homes," and a "Handbook of Hygiene and Sanitary Science," which I found very helpful and which I hope you will all read.

* Read at a recent meeting of New Hope Farmers' Institute, Doylestown, Pa.

Perhaps no one has so good an opportunity to secure a perfectly sanitary house as the one who wishes to build, if he can choose the site, has a knowledge of sanitary science and can employ an architect and builder who can embody his ideas in the building.

Builders should be more intelligent and construct houses in accordance with the physical needs of those who inhabit them.

A house to be healthfully situated should be on an elevation, however slight, with the ground sloping away from it on all sides, although much can be done by drainage.

To prevent dampness in the cellar lay a bed of concrete, and to keep the moisture in the ground from rising into the walls some builders put a layer of concrete on top of the foundation, about a foot and a half above the ground, or two or three layers of slate laid in cement; but the best materials are said to be glazed stoneware tiles, perforated to secure ventilation for the joists and timbers, or they will be subject to dry rot.

I have spoken particularly of the foundation of a house because it is much easier to lay it well before the superstructure is added than it is to dig out the cellar, put in a concrete floor and have the house jacked up to put in sills and joists after the old ones have rotted out, because of the dampness resulting from a lack of proper precautions in first building the house.

As brick is much more porous than stone, houses built of it are likely to be damp from rain unless a double wall is built, the outer one being thin and connected with the inner ones by means of stretching bricks. The hollow space between the two walls should be ventilated and drained. It might not be necessary to build any but the north and east walls double and the house will then be dry—cool in summer and warm in winter.

It is said that dampness from the ground will rise through a brick wall to the height of twenty feet, but this can be prevented in the same manner as was recommended for the stone house.

Forethought in these matters may prevent malaria, sore throats, colds and bronchial troubles, and although everyone knows that "an ounce of prevention is worth a pound of cure," not everyone takes the ounce.

Having selected the site, built a substantial foundation, decided upon the material for the walls and the mode of their construction, the manner of heating and ventilating will next be in-

dicated to the architect, so that he can make his plans for the house.

If you will notice, most chimneys are built in the outside walls, but to economize heat they should be as nearly in the centre as possible. But their position and number depend largely on the kind of heat about to be introduced. No matter how many or what the position of the chimneys, there should be built alongside of each of them a ventilating flue, with openings near the ceilings in each room. The heat from the chimney will heat the air in the flue, causing it to ascend, thus producing an upward current which will carry off the impure air of the rooms. If these ventilating flues are not built with the house they cannot be put in afterward.

Heating and ventilating are so intimately connected that we can in a measure provide for them together. If hot air from a heater in the cellar is decided upon and the heat carried to all the rooms, a fresh air pipe extending from the outer wall and communicating with an air chamber surrounding the fire may be made to supply the rooms above with pure, fresh, warm air, while the ventilating flue will carry off the vitiated air through the openings near the ceiling, and a partial system, at least, of artificial ventilation be established. To prevent the heat escaping through the pipes into the cellar, they might be covered with asbestos or some felty material.

Dr. Wilson says that most English houses are warmed and ventilated by means of open fireplaces, but that while the ordinary fireplace is a good ventilator, most of the heat goes up the chimney. This defect has been corrected by means of the Galton and other ventilating grates, which heat the fresh air before it enters the room and consume only about one-third as much fuel as the common ones. If the fireplace is in the external wall the inlet for fresh air may be immediately behind the stove, where it communicates with an air chamber next the fire, and the heated air enters the room either above the fireplace or on each side of the chimney. If the fireplace is in an inside wall, the air-channel may be laid under the floor or behind the washboard. This heated fresh air, together with the heat reflected from the stove, makes a room comfortably warm, and with the opening in the ventilating flue for the escape of impure air, also ventilates it pretty well without any cold draughts. This heat can, of course, be carried to the rooms above, and they may be ventilated in the

same manner. One disadvantage of this method is the numerous fires to attend to.

Hot water and steam heat are being put into a considerable number of houses lately, both old and new, and are said to be more economical in the use of fuel than the hot air system; but these require radiators, which are expensive, occupy space and do not act as ventilators. They, however, radiate a very pleasant and sufficient amount of heat, the hot water system possessing the advantage over steam in not having to be heated to the boiling point when only a moderate amount of heat is required, and therefore uses less fuel. The Model Novelty heater in the cellar has a boiler surrounding the fire, to which are attached outgoing and incoming pipes, the circulation of the water depending upon the fact that the hot water going out from the boiler is lighter and rises, while the cold water is constantly coming in to take its place. There is a supply and expansion tank at the highest point, and each radiator has a valve to stop the circulation of the water and thus cut off the heat. Although radiators do not provide for ventilation, neither do they consume oxygen nor give off any carbonic acid nor dust.

Perhaps a word might be said right here about the use of coal oil stoves to heat a sick room in case of an emergency, or a sitting room in spring or fall, when the heater fires are out. They consume such a large amount of oxygen and give off so much carbonic acid as to make them decidedly unhealthful unless so much fresh air is admitted as to make it impossible to increase the temperature enough to make it comfortable.

Having considered these and other kinds of heat and adopted that best suited, he may turn his attention to the rooms, doors and windows. The rooms should be from eight to ten feet high, and windows put where they will admit most sunlight, and be hung on pulleys. Doors and windows should be so situated with reference to each other as to allow of a free passage of air through the rooms. Arrange every room so as to have the sun shine in a good part of each day, the living rooms and sleeping apartments requiring the greatest amount.

It is well to have curtains to windows, but the housekeeper who values the health, strength and happiness of herself and children more than the colors in her carpet or furniture, will keep them up to within a foot of the top of the windows instead of down to within a foot of the bottom, except in summer when the sun is too

hot or the light trying to the eyes. When I ride along the road and see curtains drawn low I always think there is a funeral in that house or going to be one. Remember, God says, "Let there be light," and provides a magnificent luminary free of cost. Let us avail ourselves of it. It is good for the plants in the windows, so also is it good for the baby in the cradle and the children playing about the room. See how pale and sickly the plants brought up out of the cellar are. Place them in a sunny window or out of doors and behold the marvelous change. Apply the same rule to the human plants and mark the result. A cellar kitchen is decidedly unsanitary because deprived of sunshine and fresh air. A kitchen should be large, airy and light, as it is occupied the greater part of the day. If it is built without any rooms over it, the odors from it will not penetrate to other parts of the house.

The subject of ventilation was spoken of to some extent in the construction of the house, but as most people do not build the houses in which they live and must take them as they find them or improve them as they can, this important matter needs separate treatment. Pure air is composed of 21 parts oxygen and 79 parts nitrogen. When taken into the lungs it loses 4 per cent. of oxygen and gets carbonic acid in exchange. When the same air is inhaled three times it becomes very poisonous. The expired air, therefore, is composed of a less amount of oxygen, some carbonic acid, watery vapor and animal matter, the latter giving it the foul odor which educated nostrils immediately detect on entering an ill-ventilated room. This organic matter given off through the lungs and skin promotes the growth of bacteria, makes water offensive and taints milk and meat when exposed to it. It sticks to carpets, curtains and walls, and renders thorough cleaning necessary. For this reason old paper should be removed and the walls cleansed before fresh paper is put on; and where floors are such as can be oiled or waxed, rugs which can be frequently lifted and shaken are more healthful than carpets. The dust, however, cannot very well be removed from the floor except by a damp cloth, but this perhaps is no more difficult than sweeping heavy, dusty carpets. Heavy draperies are also good lodging places for impurities, and light, airy, washable materials are a good substitute for them. To prove to you that these things contain foes although unseen, some one examined the plaster from a hospital ward in Paris and found it contained 46 per cent. of organic matter. The carbonic acid gas and this organic matter

cause the headache, sleepiness and faintness which some people feel when crowded into a room not thoroughly supplied with places for the admission of fresh, and the removal of vitiated air.

Of course, the sources of impurity of the atmosphere in our country houses are much less than in the crowded tenements of cities where unsanitary conditions are a menace to public as well as private health. It is a pretty clearly recognized fact that churches, town and city schools, prisons, theatres and halls where large numbers of people are wont to gather, need some special inlets for fresh air and outlets for respired air. At least new buildings of this kind are thus provided, but a great many old ones will stand for years to come, and unless the public understand the necessity for fresh air and demand that they be comfortably ventilated, the people may continue to inhale foul air and suffer the consequences every time they enter them.

There seems to be very little thought given to the artificial ventilation of private houses in this country, but in England city houses are required by law to be built with a special ventilating shaft if they are not provided with open fireplaces.

I have mentioned a few of the properties of impure air, their sources and detriment to health; but we must know what need the human organism has for fresh air before we are willing to provide for special influxes of it even to refrain from stopping up every chink and cranny where a little might force an entrance.

Oxygen is essential to life. It is the vital principle of the air, and when breathed into the lungs, passes through their air cells into the capillaries and is carried along in the blood by the red corpuscles, where it unites with and burns up the carbon, nitrogen and hydrogen of the waste materials of the body and produces animal heat just as the oxygen in the air uniting with the carbon in the coal or wood produces the heat of the fire. It has been estimated that each person requires 1,000 cubic feet of space, and to keep the air pure 3,000 cubic feet of fresh air should enter every hour. That is, one person in an air tight room ten feet square and ten feet high should have it filled with fresh air three times during an hour. If there is a fire, a lamp or gas burning, more oxygen is needful to feed them. It will readily be seen, then, that it is not sufficient to depend upon the amount of air that may come in through the walls and crevices or the occasionally opened door or window. Neither will it suffice to expect the im-

purities to get out in this way. As heated air ascends, if there is no ventilating flue alongside the chimney, the chimney itself can be made an excellent extraction flue by cutting an opening in it near the ceiling and fitting it with an Arnott's ventilator, which closes itself when there is a downward draught. If doors and windows fit very tight, and there is no inlet for air, the chimney is apt to be smoky and the fire will not burn. A downward current will be established in the flue to feed the fire and the smoke pours out in the room. Usually, when there is no inlet, enough air to feed the fire comes in under the door and is drawn to the fireplace, some of which passes through it and goes up the chimney and a portion becomes heated by coming in contact with the stove, rises, becomes mixed with the impurities near the ceiling, floats to a cooler part of the room and falls to the floor. The air near the ceiling of such a room is disagreeably warm and impure, while there is a cold draught along the floor toward the fireplace. Beside the opening in the chimney for the extraction of foul air an influx of fresh air may be secured in various ways. A horizontal opening may be made in the external wall, near the ceiling, farthest from the fire, sloping inward and upward and fitted with a slide so that the opening can be closed when necessary. The air coming in through it will be projected against the ceiling and become warmed before descending; or tubes may be put through the outside wall near the floor and run up to within a foot of the ceiling where the fresh air may be discharged in the same manner.

Where radiators are used, fresh air can be introduced through pipes communicating with the outdoor air and opening either under or back of them. Having the fresh air warmed before or immediately on entering a room is preferable, as cold draughts are avoided. When there is no other contrivance, window ventilation can be made sufficient if not entirely comfortable by raising a window slightly on the side where the wind is blowing and lowering one on the opposite side to allow the tainted air to escape; but this would be injurious to anyone sitting near the window, and the housewife must constitute herself a vigilance committee to see that it is done and to guard against unpleasant draughts. Boards about six inches high fitted under or close to the lower sash so that the air entering between them may be thrown up, or boards fitted to the top of the upper sash and made

to slope upward will throw the entering current up when the sash is lowered and admit enough fresh air.

Bedrooms especially should be thoroughly ventilated. Being occupied continuously for so many hours during the long winter nights, a great amount of impurities will accumulate, and the person will rise in the morning languid and unrefreshed and without any appetite, although less oxygen is required during a period of rest than when engaged in active exercise. No matter how well supplied with artificial ventilation a house may be, windows should be opened every day and beds and bed clothing well aired every morning. With a little knowledge of sanitary science and an intelligent application of its principles our country homes might be much improved with little expense, especially if they are provided with that most important of all sanitary appliances, a housewife possessed of those three telling qualities—"grace, grit and gumption, the greatest of which is gumption."

THE MARITIME PROVINCES OF CANADA AS A SUMMER HEALTH RESORT.

The popularity of the maritime provinces as a holiday resort has been rapidly increasing during the past few years. In the warmer months tourists have been coming hither in large and larger numbers, crowding the steamers and trains and overflowing the hotels. The increase in the travel has really been so great of late that it was with difficulty that sufficient accommodation could be provided in many of the favorite localities, and in numerous instances visitors have had to put up with inconveniences which almost amounted to hardship.

The reason for our unpreparedness lies in the suddenness with which the travel us-ward rose in its volume. Now that we have become aware of the popularity of our provinces, the business instinct has awakened, and every effort is being put forth by railway, steamboat and hotel men to prevent a repetition of the uncomfortable overcrowding to which the tourists of the last two or three seasons have had to submit. The train and steamboat services will be augmented, so as to provide for any contingency, and numerous comfortable hotels have already been, or shortly

will be, completed in the localities where the congestion has been most marked in times past. All this is being done because of the assurance that future seasons will bring to us even greater numbers of visitors than we have had in the past.

This is being done by the commercial men because of the benefit which they reap from the tourist trade. The railways and steamboat lines and hotels profit most, of course, but other lines of trade are secondarily stimulated in no small degree. Why should not the medical fraternity legitimately have a share in the increase of business thus induced?

Our provinces have come into the favor of the holiday-maker mainly because of the restfulness of our surroundings, the variety of climate, scenery and amusements afforded and the cheapness of a residence with us. Tourists go into raptures over the beauties of our hills and streams and the delightfulness of our climate, and they assert that a very few days in our pleasant country is sufficient to invigorate and quite recreate them. Should these excellent qualities, which are mentioned quite apart from the historic interests attaching to the provinces, be less attractive to the invalid and the convalescent than to those who are merely on pleasure bent?

We feel that our provinces offer advantages as a health resort which are not inferior to many of the widely-advertised resorts, and which should be made generally known. Within easy reaches we can present every variety of climate—from that of the coast to that of the valley or the hill. There is no class of disease for which a suitable locality may not readily be found. Our complete freedom from malaria should in itself be attractive to a large number of sufferers. All of our towns, while perhaps not possessed of very pretentious buildings, are modern in respect to sanitary arrangements, etc., and can provide comfortable accommodation to visitors. There is, consequently, no reason why we should not attract within our borders health-seekers as well as pleasure-seekers. Let us not lose sight of these facts. We are surely privileged to advance our interests in any legitimate way. There would appear to be scope here for an honest effort to broaden our field for practice, and still to be ethical and possibly even humanitarian in the effort.—"Maritime Medical News."

THE NEW ADIRONDACKS SANITARIUM.

This institution, for which Dr. Seward Webb and Mr. Paul Smith generously gave the land, was opened last July. Hidden away as it is, in the valley between Mount Marcy, White Face and McIntyre Mountains, but little is as yet known of this wonderful institution.

The object of the sanitarium is the treatment of tuberculosis. Some years ago the good Sisters of Mercy, whose mother house is in Hogansbury, N. Y., determined to erect such an institution, and, after many difficulties which they had to surmount, their hopes were realized.

The location of the sanitarium is, in itself, most desirable. It stands on ground 2,000 feet above the level of the sea. Directly opposite the front of the buildings Mount Marcy and White Face Mountains tower in the hazy morning atmosphere, while a chain of lesser peaks lift their heads, one alongside another. In the extreme distance they seem to blend and fade away into the deep blue sky.

Here and there through the bordered pines the silver water of Lake Lucretia can be seen. A short walk will bring one to this beautiful lake, where the lovers of angling can enjoy fishing for speckled trout, and where, with two or three "carries," one can reach through the St. Regis lakes and river the great St. Lawrence.

The buildings are all on the line of the Webb road, which runs between Utica and Montreal. They are thirty-one miles south of Malone, and about twelve miles southwest of Saranac Lake.

The buildings, seven in number, are all built of the native wood birch, with slate roofs. The interiors are finished in oak and pine. Each building has a special name.

Administration building is at walking distance from the depot, named after Paul Smith, owner and proprietor of one of the largest and best equipped hostelries in the mountains. This building was the first erected. It is three stories in height, and is almost entirely surrounded by a beautiful veranda ten feet in width. The first floor is laid out in large, spacious rooms, used as parlors, reception rooms, etc. The upper stories are used as sleeping apartments.

Near by is the Kerins cottage, the gift of Mrs. James Kerin, of Troy, N. Y., in memory of her husband and three children. The cottage is laid out in four rooms, and is used by the summer boarders.

This building, like most of the others, is surrounded by a "roomy" veranda. The foundation of the house is composed of heavy slate. The style is modern.

North of the administration building stands the infirmary, a three-story building adapted for the care of the patients. The "sun-parlor" is one of the features of this building, and is the gift of ex-Governor Morton, and is called "The Anna L. Morton room." Mrs. McKee has a room in her son's name, "The B. H. McKee room." Ex-Governor Flower, the elegant dining room, adjoining Mrs. Morton's room. Another handsome room has been given by Bourke Cochran, in memory of his wife, and has been named the Rhoda E. Cochran room. Other rooms have been furnished by General Davies in memory of his wife, and others, called the Chidwold room, Paul Smith room, the Francis De Villiers Hoare room, Loon Lake room, Mrs. J. W. Dimick, Mrs. N. H. Chase, Mrs. Clinton Ogilvie. Mr. Anthony N. Brady, of Albany, is generous benefactor, and Mrs. Cassidy, of Albany, has endowed a bed in memory of her son.

North of the administration building and close to the infirmary is St. Joseph's cottage. This is a two-story structure, and is used for "summer" purposes.

The boiler house is 200 feet from the main building. All the water used at the sanitarium is pumped from the water-tower some fifty feet high. The water, obtained from driven wells, has been examined by expert chemists, who have pronounced it to be entirely free from impurities.

The laundry, another two-story structure, is located about 300 feet northwest of the administration building. It is equipped with all the machinery of a first-class laundry, and is supplied with steam heat from the boiler house.

The laboratory, which is well equipped with all the modern accessories for treating tuberculosis, is located in the administration building. Dr. Noble, of Bloomingdale, N. Y., is house physician.

All the dining rooms are in the administration building. The kitchen, which cost $6,000, and named in honor of the Holy House of Nazareth, where the Holy Family lived on earth, has a floor surface of 1,400 square feet, and is over a cellar twelve

feet high. Miss Shapleigh, who had charge of the cooking school at St. Vincent's Orphan Asylum, will also instruct the Sisters of St. Gabriel's in all branches of cooking.

The kitchen floor is constructed of iron beams, brick arches and concrete, on which is laid encaustic tile of various colors. Surrounding the kitchen are large store rooms, pantries, pastry rooms, etc., and a large refrigerator equipped with the latest freezing devices. The roof over the kitchen proper is entirely exposed, supported by heavy trusses and finished with varnished ceiling.

Over the centre of the kitchen, in the roof, is a clere story with sash on all sides for ventilating purposes and worked from the kitchen with ropes and pulleys.

The special feature of these buildings is the facility of heating and ventilating them. They are heated by direct radiation from the central plant.

The pure mountain air from without is forced through the shaft into the buildings, heated on its way by radiating pipes. The system is so nearly perfect that the air can be changed throughout the buildings every five minutes.

The average number of patients last summer was about fifty. Here, as in every well-regulated household, a routine is gone through every day.

At 7:30 in the morning the "rising-bell" is sounded. Half an hour later breakfast is served. The hours after breakfast until 11 o'clock are whiled away on the veranda. At 11 o'clock the patients partake of some boiled milk, and one hour later dinner is eaten. At three in the afternoon another light lunch of boiled milk is partaken of. Six o'clock is supper time, and all retire at nine.

The patients are always out in the day. Even during the winter months when the temperature is away below zero and there is nothing in sight save limitless seas of virgin snow, they sit out on the veranda wrapped in robes and furs, and with their feet enclosed in boxes of straw or wool breathe the life-giving air.

An eye-witness has said: "There they sit on the veranda during the short winter days and chat away as if there was no care or anxiety upon their minds.

The houses are all built of hard wood, so as to permit a thorough disinfection as often as may be necessary.

The plan of the water supply was designed and perfected by

Mr. J. McCormack, an expert, under the direction of Hon. I. G. Perry. The quality and abundance of the supply is remarkable, even in the Adirondacks.

The institution is furnished with the rain baths now so much approved by eminent physicians.

One of the advantages possessed by Sanitarium Gabriels is that it is built on the cottage plan. These neat, cozy little homes are arranged in a group about the administration or main building. They are well supplied with windows and are nearly surrounded with spacious verandas.

Lovers of bass and pickerel fishing may here have their desires satisfied. Some of the patients who are given to boating and sailing spend much of their time on the placid waters of Lucretia Lake nearby.

The life members of the sanitarium are: Denis Cahill, Minnie Mullin, Mrs. McMahon, J. Raphael Grace, John Randolph Quin, J. C. Lyons, John Agar, James Nowlan, Mary M. Beeker.

Forms of Gifts.—Seven thousand dollars endows a room in perpetuity. Five thousand dollars endows a bed in perpetuity. The annual charge for the support of a room is $350. A gift of $500 will build and furnish a room to be named in honor of the giver, and a contribution of from $50 to $100 will furnish a room and entitles the donor to become a life member.

While a great deal has been accomplished in two years, the subscriptions fall far short of the cost of improvements, and all kinds of gifts will be welcome.

The sanitarium is purely non-sectarian, and the plan of the institution is such that it will reach both the rich and poor; elegant rooms, careful nursing, every comfort and luxury is afforded at a moderate price.

TRANSMISSION OF INFECTIOUS DISEASES BY THE ATMOSPHERE. —E. Germano (*Zeitschr. f. Hyg. u. Infections,* Krankh, 1879, vol. xxxvi., p. 273), gives the results of his researches on the resistance of bacteria to desiccation, and consequently on the possibility of their transportation in a virulent condition or the reverse by the atmosphere. After having explained the behavior in the presence of desiccation of the vibrio of cholera, the bacillus of plague, and the bacillus of cerebro-spinal meningitis, the author

summarizes the results of all his observations in the following manner:

From the standpoint of resistance to desiccation pathogenic bacteria may be divided into three groups:

1. The first group comprises the vibrio of cholera, the bacillus of plague and the bacillus of typhoid fever. These belong to the category of fixed viruses, for they offer a feeble resistance to desiccation in dust, in which they disappear almost completely after twenty-four hours. Their transportation by the atmosphere in a virulent condition is no longer admissible. Everything seems to favor the opinion, that the bacillus of influenza and the gonococcus behave in the same manner.

2. The second group comprises the streptococcus, the bacillus of diphtheria and the pneumococcus. They offer greater resistance to desiccation, and this resistance varies with the origin of the culture. Generally, however, we may consider them as fixed viruses, in the sense that their transportation by the atmosphere in a virulent condition does not ordinarily take place. However, under certain conditions, they may act like a volatile virus, that is to say, they may be transported by the air in a virulent condition, a circumstance which would explain the appearance of sporadic cases of erysipelas or diphtheria. Perhaps, also, in certain forms of epidemic pneumonia the pneumococcus becomes a volatile virus.

3. The third group comprises the intracellular diplococcus, the agent of epidemic cerebro-spinal meningitis, which offers a strong resistance to desiccation, and beside which, from the point of view of this resistance, may be placed the bacillus tuberculosis and the staphylococcus. The question of the conditions under which infection by the staphylococcus and tuberculosis may be transmitted by the air is not yet solved. However, if the infection of wounds occurs by immediate contact, one can understand how staphylococci, dried but still virulent, may be transported by the air and fall on a wound or objects in contact with it. With regard to tubercular infection, it had already been concluded from negative experiments on animals, that aerial infection in man is impossible. According to Germano this conclusion is not quite exact, for it is possible that in man, or, at least, in certain individuals, the respiratory passages are more accessible to tuberculosis that the respiratory passages of animals.

MALARIA AND THE CUBAN CAMPAIGN.

By Charles E. de M. Sajous.

In the spring of 1895 the writer witnessed the departure from Paris of the Two Hundredth Infantry for Madagascar. Beaming with anticipations of a glorious campaign the young soldiers composing the regiment seemed capable of any physical effort; robust, agile, and merry, they appeared able not only to defy the efforts of any human foe, but also to remain invulnerable to the onslaughts of a more potent enemy—the noxious emanations of marsh-lands and pools. The campaign was pushed with energy; but some months later every Parisian's heart was stirred to the utmost by the return of the same regiment, or, rather, what was left of it; a handful of gaunt, yellow "convalescents," several of whom were soon to follow the nine hundred and odd comrades who had preceded them in the other world. The human antagonist had been a myth; the subtle earth and water-borne enemy had done it all.

The Spaniards have already said that their strongest allies would be the febrile diseases of Cuba; yellow fever and malaria. We have no reason to disagree with them, and, if the disastrous Madagascar campaign is taken as *theme,* it is because from the sanitary aspect there is a striking analogy between it and the Cuban campaign upon which we have just embarked. Geographically, Madagascar and Cuba may be called "sister-isles": the former is centrally traversed by the 22d degree of latitude south. the latter by the 22d degree of latitude north. Both lie to the southeast of the main-land; both are surrounded by warm ocean-currents; both are paradises of fertility—studded with hot-beds of decaying vegetable matter, marshes, and swamps. When the resisting powers of the French and American forces are compared, they may be said to be very similar; the Foreign Legion, of France, is represented by our regulars; the French regiments of the line, made up of men between 21 and 24 years of age, about correspond to our volunteers, ranging in age from 21 to 35, who compensate through their greater proximity to full development for the

superior physical training of the French troops—which, by the by malaria in no way respects. As to the sanitary organization, the French medical corps was severely criticised by the lay press when the deplorable condition of the troops was made known; how far this was warranted it does not belong to us to state, but it can safely be asserted that a more loyal and better versed corps of military surgeons can be found nowhere. The fact remains, however, that if such results are possible with a medical corps organized on a permanent footing to satisfy the needs of a standing army of half a million men, to expect perfect service from a corps such as ours, elaborated for an army of twenty-three thousand men and suddenly increased to one of nearly two hundred thousand, is certainly paying Surgeon-General Sternberg a high tribute; one, indeed, which he truly merits.

The coincidence of arduous field-service and fever has often been noticed; so great an authority on these matters as Laveran places transmission by drinking-water at the head of the list of pathogenic factors, and he has shown that malarious countries have been traversed with impunity by drinking only boiled water. Dr. Smart, of the United States Army, has witnessed the improved condition of troops suffering from malaria as soon as purer water-supplies had been afforded; our esteemed colleague, Dr. Shrady, editor of the New York Medical Record, has emphasized it.

While laying stress upon factors which may not have received the attention due them, our aim is not to undervalue those to which pathologists attribute the active role as intermediaries. Indeed, the Madagascar campaign affords a striking lesson as regards the importance of aerial transmission. To facilitate the transportation of baggage into the interior of the island, the French government had supplied its troops with metallic wagonettes, so constructed that they could be floated across streams. For one cause or another it was soon found that they could not be used, and the construction of a cross-country road was determined upon. The young soldiers were put to the task, and bravely and uncomplainingly they worked. Soon, however, the sick-list increased, and, by the time the road was finished, the mortality-list had become appalling. Why the military authorities permitted this when natives could be had to do the work it would be difficult to explain. To us, the lesson taught by this holocaust of victims is that under no circum-

stances should unacclimatized men be employed to work the soil. "Europeans must not attempt to work the ground in the inter-tropical regions" writes Medical Director Maurel of the French navy; "it is death to them, but it does not injure negroes or other natives, who should be secured for this purpose." The importance of aerial transmission is further shown by Dr. Maurel's personal observations. In Africa he had spent nights tramping in the marshes without suffering the least inconvenience, while his assistants suffered from chills: merely because they did not seem to be able, literally speaking, to "keep their mouths shut." He absolutely refrained from talking so as to allow none of the miasmatic air to reach his lungs through the mouth, the nasal passages, as is well known, acting as a sterilizing apparatus through the destructive action of the nasal secretions upon atmospheric organism.

The accumulation of malaria near the surface accounts for the generally-recognized fact that people who sleep on the ground-floor frequently suffer, while those who sleep in the upper stories remain unaffected. Hence the recommendation of hygienists to build houses on high places as far away as possible from gas laden marshes and pools. Again, the inhabitants of the Pontine Marshes have learned by experience to sleep on platforms supported on stakes from twelve to fifteen feet high; a practice which is also resorted to in the malarious districts of Greece. These facts sufficiently sustain the advantage of camping troops upon the most elevated ground that can be reached, the tents being so placed as to have their rear face the dominant wind of the region. In bivouacking, hammocks—readily transportable by cavalry and artillery—hung as high as possible, materially reduce the chances of malaria infection by holding the sleeper, if not entirely above, at least in a comparatively-rarefied part of the malarial stratum.

The evidence in favor of contamination by suctorial insects is no less strong, and the fact the mosquito can thus transmit the pathogenic elements of malaria is gaining ground every day. Two years ago Manson produced, in the human subject, attacks of typical malaria by the inhibition of water inoculated from the bodies of mosquitoes which had bitten persons suffering at the time from malarial fever.

Practically, mosquitoes probably represent the most trying foe one has to contend with in malarial districts, when rapid changes

of camping grounds are necessary; but, fortunately, the other prophylactic measures required include the selection of high ground, located as far as possible from pools, etc., and as mosquitoes are absent, or, at least, not so numerous under such conditions, unless winds passing over swamps carry them, the men will frequently obtain moments of respite from their attacks. It is during marches which take in high and low ground, virgin forests, swamps, pools, and shallow streams that the little pests become intolerable, and anyone who has tried under a tropical sun to cover head and hands with mosquito netting knows what hades might be like; it is something like being stifled and parboiled at the same time. At night, however, netting can be advantageously employed in many ways, even when lying under tents, which seem in no way to prevent their entrance. For campaigns in tropical climates, our tents appear to be very deficient. The ground over which they stand allows the "*grundluft,*" or "ground-air," upon which German authors lay stress as a prominent etiological factor of malarial fevers, to freely contaminate the air; the interstices under the walls and flys permit the free ingress of reptiles and insects. These defects could be easily counteracted by adding to the tent a water-proof canvas base or "floor" sewn to the bottom of the perpendicular canvas ends and sides, and rising in front some inches above the ground under the flys. Such a tent could be closed in on all sides and would afford greatly increased protection against the most active disease-dealing agents nature supplies in the tropics, and enable the troops to profit, to a great degree, of the hours reserved for rest.*

Drinking-water merits the greatest attention. In the British service this subject is considered as one of capital importance, but, unfortunately, the manner of satisfactorily supplying sufficient quantities of pure water is far from settled. Dr. R. H. Castellote, in the "Lancet" of February 12, 1898, published notes on the Niger-Soudan campaign of 1896, which not only emphasize this fact, but also give valuable details regarding the use of portable filters. Each man had been supplied, as had been the case in the Ashantee expedition, with a small pocket charcoal filter in a metal

* The editor hereof had occasion to advise some shore expeditions on the Gulf coast, during the Mexican War, to make use of *cabides*, untanned or otherwise, as effectual ground covering on damp soil. Moreover, he had the satisfaction to observe that mosquito nets afford protection against malaria, even when mosquitoes and other insects are absent.—A. N. B.

case. These were found handy, but they required very frequent cleaning and the "inspiratory power required to get a small result" caused a strong tendency among the men to discard their use. Pasteur-Chamberland filters also required too frequent cleansing and soon had to be abandoned owing to the destructive wear and tear of transportation. Altogether the question of portable filters in the tropics was found to be a difficult one. Dr. Castellote outlines the principal requirements that an expedition filter should present, and furnishes valuable hints based, of course, upon personal observation:

"A filter should be strong enough to stand the knocking about that things get from native servants and carriers; it should be capable of turning out a large quantity of water in a short time; should be easily taken to pieces for the component parts to be cleaned at frequent intervals (the amount of deposition on the porcelain or charcoal is evidence of the quantity of suspended matter in the water at most places); to be useful at short halts on the march it should be easily set going and packed up again; and, lastly, it must be fairly portable.

"On the whole, probably one of the larger forms of Pasteur-Chamberland filters fitted with pump and with the body made of earthenware or galvanized iron, and securely packed in an outer jacket of wood or wicker-work, would turn out enough water for twenty men in a short time and would answer most of the other requirements. The only point not satisfactory would be its portability. It would form a complete load for one carrier, and if of earthenware possibly would have to be carried between two.

"Whenever possible, undoubtedly the best and most certain way of purifying or rather sterilizing water is by boiling. This in itself is sufficient to make the water good and palatable for drinking purposes if it is naturally fairly clear; but if, as usually is the case, there is much suspended organic matter in it, this can be largely removed by straining through fine muslin or a clean pocket-handkerchief before boiling.

Boiling was the process, on the failure of our filters, that we most generally relied on for getting a drink. Each white man carried a vulcanite water-bottle of about one and a half pints' capacity, covered with felt and fitted with padlock, which was filled with boiled water, tea, etc., over night. But with thirsty men

on a long day's march under a tropical sun it can readily be understood that one and a half pints of fluid did not go very far, and three or four hours generally saw most of the water-bottles empty. After that, one had either to exercise a great deal of self-control or risk drinking unprepared water whenever we came to it. It was not nice and it was not wholesome, but at all events it was wet, and I think the latter quality was the one which recommended itself to many. The vulcanite bottles require careful attention. In a short time, especially if used to carry tea, they acquire a musty, stale odor, which communicated a similar taste to the water. Hot water shaken up with a little clean sand soon disposes of this trouble. The felt coverings absorb a good deal of water, which, on exposure to the sun and wind by evaporation, renders the contents of the bottles very fairly cool. It was customary to dip them whenever we came to water." These are timely hints.

A few words concerning prophylactic measures addressed directly to the blood may not be out of place. That quinine merits, on the whole, the confidence of army surgeons as a potent prophylactic need not be emphasized; we positively know that the spores of the *plasmodium malariæ* are extremely susceptible to its action, even when the proportion in the blood is minute. But we also know that it occasionally fails, *especially when general measures of prevention are not resorted to.* The conclusion imposed upon us, therefore, is that quinine should occupy an important position in the general prophylactic plan adopted, but that it should not alone be depended on; in other words, none of the other measures should be neglected if its best effects are to be obtained.

What is the best salt to use, what is the quantity that should be employed, and, lastly, what is the best time of the day to administer it to prevent untoward effects, gastric and general? Our late associate editor, Dr. Dujardin-Beaumetz, having announced to the Société de Thérapeutique of Paris that the soldiers about to be sent to Madagascar were to carry with them, for prophylactic purposes, a considerable quantity of quinine, and that it would be desirable to know if one of the salts of that drug were preferable to another, and also which was the most suitable pharmaceutical form for administration, the society appointed a commission to investigate the subject. The results of their studies

were embodied in the following conclusions: 1. The basic quinine hydrochlorate is to be preferred as a prophylactic measure, as being sufficiently soluble and containing the largest quantity of the alkaloid. It is also less irritating to the digestive passages than the sulphate. The hydrobromate should be employed in rebellious cases of fever in which the sulphate has failed. 2. The compressed preparations should be absolutely rejected; pills made with a soluble excipient or gelatin capsules seem to be the preparations of choice in preventive treatment. 3. Two pellets or gelatin capsules containing four grains of the hydrochlorate may be given daily; one in the morning and one in the evening. This quantity will be sufficient to maintain the organism continually under the influence of the quinine.

For the reasons already outlined, the prophylactic use of quinine was not systematically resorted to during the Madagascar expedition, but a review of the general literature on this subject has shown that the above conclusions coincide with the views of the majority of writers who speak from the standpoint of personal experience. Small doses are not reliable; large doses are apt to be hurtful. Four grains night and morning were found to do no harm, even if administered during long periods, *provided the drug was given during meals.* Administered in this manner, quinine will not even, according to Laveran, irritate the stomach. This author also recommends the hydrochlorate; but he states that it should not be taken with coffee, this beverage causing a portion of the quinine to be precipitated. Thin advises that it be given two days before the malarial district is reached.

The following prophylactic measures, carried out simultaneously, become necessary in malarial districts to insure adequate protection:

1. To avoid contamination through the respired air and inoculation by insects:

   Unacclimatized men, white or black, should not be employed for the digging of trenches, the erection of defences, or any other kind of work involving upturning of the soil. Natives should alone be utilized for this work.

   High ground should be selected for camp-sites, windward, if possible, of any swamp, pool, stream, etc., that may be in the neighborhood.

   The men should sleep as high above the ground as pos-

sible (not less than two feet and, if practicable, from twelve to fifteen feet) and be provided with mosquito netting.

While crossing malaria-laden forests, glens, lowlands, swamps, etc., the men should be ordered to avoid talking.

2. To avoid contamination by water:

When water from malarial regions is alone available for drinking purposes, it should be filtered, or, preferably, sterilized by boiling.

Bathing should not be permitted when water from a malarial region can alone be obtained, but washing of the body with such water is permissible, provided carbolic-acid soap be employed.

3. To prevent the development of malarial parasites in the blood:

Four grains of hydrochlorate of quinine should be administered morning and evening during meals as prophylactic, beginning two days before the malarious region is reached.

4. To conserve the general powers of resistance of the economy:

Regular and frequent periods of rest should intersperse long marches. Drenching and wading through streams should be avoided when possible. Varied and adequate food should be furnished.

The head should be so protected as to secure a maximum amount of coolness under all degrees of temperature, a head-gear such as the solar tepé being furnished for this purpose.—"The Monthly Cyclopædia of Practical Medicine and Universal Medical Journal," May, 1898.

PHILADELPHIA'S FILTHY WATER.—A second joint trip of the City and State Boards of Health for the purpose of discovering places of pollution along the Schuylkill was made May 26. The party consisted of Dr. Benjamin Lee, secretary of the State Board of Health; Dr. George Woodward, of the City Board of Health; Chief John C. Trautwine, of the Bureau of Water; Assistant Chief Joseph Rea; George S. Hughes, assistant chief of the House Draining Department; his assistant, James Mellon, and D. S. Bell, official photographer.

Leaving Manayunk they went up through the canal to the open river above Flat Rock. The first stop was made at Hamilton's

Riverside paper mill, at Lafayette, just above the city limits and in Montgomery county. There a strong stream of yellowish, thick water swept out into the river and some thirty feet from shore a nasty oily substance floated on the surface, where a submerged drain emptied into the river. Dr. Woodward ordered a demi-john full of the liquid bottled up for future analysis by the city chemist. "This," said Chief Trautwine, "I believe is responsible for the peculiar taste of the Germantown water, of which so much complaint has been made."

No examination was made of Mill Creek, across the river from Shawmont, but on a previous explanation which Chief Hughes made, he said yesterday this stream was badly polluted with house and stable drainage, and also milk refuse, the tributaries leading to Mill Creek draining Bryn Mawr, including the Women's College there, Rosemont, Ardmore and other places.

Continuing on up through the Conshohocken canal the officials kept a look-out for all suspicious drainage or discharge pipes leading from the iron works and other establishments. They landed above Conshohocken and took a sample of water from Plymouth Creek. An examination of the waters of Gulf Creek was made. This was a filthy looking stream of indigo hue, whose waters discolored the river for hundreds of yards. A sample was taken for analysis.

At Bridgeport there were found conditions enough to turn any self-respecting Philadelphian from ever again tasting unfiltered water from our present city supply. From the woolen mills, on the west side of the canal, emptied into the river a discharge pipe from which flowed sickening looking dye water and other refuse. The river was covered with a dark slimy liquid.

A little further up the entire surface of the canal was colored a deep indigo where the woolen mills had a frame dye house plump over the water and dumped all their waste and dye stuffs into the water, to be carried out into the river. Next door to this place is a paper mill, also contributing its share to the pollution of the stream.

DON'T NEED PUBLIC BATHS!

So says Mayor Van Alstine, of Albany, upon being interviewed by the "Albany Telegram":

"You see, those who bathe bathe, and those who do not bathe can't be made to bathe. I think that all who want to take the trouble to bathe do so now and that there is no imperative need of permanent public baths."

There is a law compelling cities the size of Albany to supply its citizens with bathing facilities. This law is chapter 351 of the laws of 1895, and reads as follows:

"Section 1. All cities of the first and second classes shall establish and maintain such a number of free public baths as the local board of health may deem necessary. Each bath shall be kept open not less than fourteen hours for each day and both hot and cold water shall be provided. The maintenance of ocean or river baths shall not be deemed a compliance with this section. Any village, city or town having less than 50,000 inhabitants may establish and maintain free public baths, and any city, village or town may loan its credit or may appropriate of its funds for the purpose of establishing such free public baths."

The law was passed through the efforts of Dr. Baruch, of New York, the Mayor's committee, and Lunacy Commissioner Goodwin Brown. In 1891 Mr. Brown's attention was attracted to the rain or spray system of bathing in the soldiers' barracks in Berlin. As a consequence the bathing apparatus in all the State institutions over which the Lunacy Commission has supervision has been entirely replaced with the shower system, some tubs being used where necessary. A model structure is substantially of brick and iron, two stories in height, and presents an attractive appearance. The walls are of white enamel brick; strong iron beams support the floors; the roof and bath rooms are of iron. Designed for the accommodation of both sexes, the baths on the main floor are equally divided, nine spray baths being allotted to each. There is one general entrance, but separate waiting rooms, one for men and the other for women; from these each in turn goes to the baths, which are completely shut off from the adjoining compartments. In the rear of the main section there are three bathtubs, two for females and one for males, the former

principally used by mothers with young children. The basement contains nine spray baths. They are all reserved for males and constructed precisely similar to those on the main floor. A large skylight gives light to the bathroom above and artificial light is used for those below. A bather occupies his compartment for twenty minutes. This is ample time for a comfortable bath. He receives a towel and a cake of soap and the fee for the bath is five cents. A mother with little children counts as one. In a town the size of Albany a public bath house is a necessity. The mayor's argument is a poor and illogical one. Anyone who has once experienced the delights of the spray bath does not want to go long without its use. As a sop to the public demand for bathing facilities the city of Albany has offered the citizens the use of the Benson bath house, now lying at the foot of Columbia street. This house, however, is almost a wreck, but is now being put into shape for public use. The expense of the baths needed by this city would be but $16,000, which sum would provide two baths properly located at an expense of $8,000 apiece. The maintenance would be about $1,200 a year, for each bath would pay for the help required and $800 would pay for the running of each bath, making a total expenditure for the operation of the two baths all the year around, furnishing hot and cold water and soap and towels to all the people of the city who would use the opportunity, of $4,000 per annum. Free public baths are not charity, they are sanitary, and work for the betterment of the entire population of the city. The expense of maintaining two such baths as described is nominal in comparison with the splendid results which the health statistics would show. The item of $1,200 for labor in each bath would pay for the services of one woman, a man and a boy. The woman would, of course, look after the women and the man look after the men. The boy would be of general utility, too look after soap and towels, etc. The man and woman would live in quarters over the bath, it being understood that a married couple would be preferable, as they would work together better. The best system is the spray or shower bath. This is simply a gentle shower of water, the temperature and force easily regulated by the bather, the water at once running off into the sewer. In this way the most perfect cleanliness is insured, and all risk of infection or communication of contagious diseases, such as must be almost inseparable from the use of ordinary bathtubs, is avoided.

VACCINE VIRUS.

CIRCULAR OF INFORMATION RELATING TO LIQUID BOVINE VACCINE VIRUS AND TO VACCINATION.

Approved by the Department of Health of the City of New York., March 24, 1898.

The Department of Health desires to call attention to the improved form of bovine vaccine virus now issued from its vaccine laboratory; to the care exercised in its production, and to the excellence of the resulting product. A long and careful investigation of methods of production has led to a complete change from those formerly in use. The virus now issued and recommended for use is a liquid glycerinated pulp. This, it has been demonstrated, has greater activity, greater durability, and greater freedom from bacteria than the virus which is dried on points. Although led by its own observations to adopt this form of virus, the Department of Health in supplying such vaccine is only following the example of all of the best continental vaccine laboratories. It is believed that no other virus is more fully tested before being issued than that prepared in the laboratories of the New York City Department of Health. The greatest care is taken to insure cleanliness in the production and preservation of the virus; all instruments and receptacles are sterilized, and the operations of inoculation and collection are conducted with constant reference to aseptic methods.

Before the virus from any animal is used, the calf from which it was obtained is sent to autopsy and the organs are examined for any evidences of disease. One sample of the virus is then examined bacteriologically, and a second is forwarded to the clinical tester of vaccine virus, and no virus is issued unless the reports of the pathologist, bacteriologist and clinical tester are all satisfactory.

The results obtained with the improved methods, under the rigid tests described, are excellent. During eleven months of the year 1897, reports were received from more than 20,000 primary vaccinations made with this virus, and the percentage of success attained in these was over 99.

The virus is a syrupy, opaque, light brown emulsion of uniform consistency. It is put up in capillary tubes containing each enough for a single vaccination, and in vials of two sizes, one containing one-fifth of a cubic centimeter for ten vaccinations, and the other containing one cubic centimeter for fifty vaccinations.

The virus, in common with the other products of the Department of Health, is furnished free to all public institutions in this city on application. It may be obtained by private physicians at many drug stores throughout the different boroughs, or may be purchased directly from the Department of Health at its borough offices.

VACCINATION.

Methods.—Vaccination may be performed either by scarification or by puncture.

Scarification.—The part of the body to be preferred for the vaccination is at the insertion of the deltoid on either arm. When the leg is vaccinated (possibly on account of the greater difficulty in keeping it quiet and clean), inflammatory complications are more frequently present and are apt to be more severe.

The skin at the place chosen should be made clean. It is doubtful if attempts at more than simple cleanliness are of value; reports of series of cases in which one arm has been vaccinated with only ordinary attention to cleanliness, and the other arm vaccinated after most rigid antiseptic measures had been carried out, indicate that no greater freedom from inflammatory complications resulted in the aseptic arm than in the other.

The scarification should be made with a sterile instrument. The Department of Health recommends the use of an ordinary cambric needle, because a new one may be used for each case, and there is thus no possibility of transference of an infection from one person to another. When, however, the necessary precautions can be taken to render the instrument aseptic, any other sharp instrument serves as well.

It is of great importance that the scarified area should be not more than one-eighth of an inch square, because the larger the area the greater the tendency to subsequent infection and to inflammatory complications. Moreover, with the more cencentrated virus at present issued by the Department of Health a small scarification is ample for invariable success. It should be noted that a vaccine vesicle enlarges peripherally, and the resulting crust always covers a considerably greater area than that originally scari-

fied. The virus should be rubbed in thoroughly and allowed to dry for at least ten minutes. It is a convenience to blow the virus from the capillary tube in which it is contained on to the broad end of the accompanying piece of wood and then rub the wood on the scarified area, instead of blowing the virus directly upon that area.

Puncture.—The spot chosen and the method of preparation of the skin are the same as for vaccination by scarification.

The best instrument to employ is a scalpel with a narrow sharp grooved point protected by a guard, so that it can be plunged only about one-sixteenth of an inch beneath the surface. A drop of the vaccine lymph is placed on this instrument after it has been sterilized, and the blade is then thrust obliquely through the skin with the point directed away from the shoulder. By a slight motion of the point the virus is deposited in the pocket so formed and the blade is then withdrawn. Some blood follows, and if the operation is not skillfully done, either sufficient vaccine virus may not be introduced, or the flowing blood may wash away the virus which has been carried in. In either case a failure may result.

The operation is speedier but somewhat more painful than scarification, and is also a much more severe test of the skill of the vaccinator and the quality of the virus; for if the virus is not concentrated, it is possible that in the small amount introduced there may not be enough active elements to produce a vesicle. When the operation is successful, the resulting vesicle is nearly circular, typical and very rarely undergoes post vaccinal infection. Inflammatory complications from other causes are also notably rare.

It is advised, therefore, to combine the advantages of the two methods described by scarifying as small an area as possible.

Inflammatory Complications.—Inflammatory complications are frequently attributed to bacteria contained in the vaccine virus. This is usually incorrect. It is now possible to obtain vaccine virus of great activity wholly free from bacteria, as tested by cultures made in bouillon, on gelatine, and on agar. This sterility results from a mixture of the crude virus with glycerin in varying proportions. Nevertheless, vaccinations performed in the most skilful manner and by aseptic methods, with vaccine virus shown to be sterile, are not always entirely free from inflammatory complications. Such has been the experience in this city, and such is

the experience recorded by the Imperial German Vaccine Commission in its report recently issued. After more than two years of study upon the inflammatory complications of vaccinia, the commission, composed of Koch, Pfeiffer and others, reported that there is no general casual connection between bacteria in the lymph and inflammatory complications in the one vaccinated, and concluded that the inflammatory complications of unruptured vesicles depend on the idiosyncrasy of the person vaccinated, on the concentration of the lymph, and on the technique of vaccination; it pointed out, further, the fact that large and deep scarifications are followed with especial frequency by these complications. Many varieties of infections may, of course, be introduced after vaccination, if the natural crust is broken.

After the scarification has been made and the virus inserted, the wound area may be protected by some form of aseptic dressing; but this is not usually desirable, for if the dressing fits closely, the vesicle beneath usually becomes macerated and healing is thereby delayed; and if the dressing is elevated by any variety of shield, the shield itself is apt (especially with children) to become disturbed and to rub the vesicle, causing then the same trouble as the close dressing. On the other hand, if the vesicle as it forms is undisturbed, the natural crust affords a sufficient and suitable covering. The crust, however, may well be protected from being rubbed by a piece of clean muslin placed between it and the sleeve, which should be loose. If for any reason the crust is removed, treatment of the wound upon general surgical principles is proper.

C. GOLDERMAN, Secretary pro tem.

DIPHTHERIA ANTITOXIC SERUM, also, is now prepared of much greater power than that which has previously been in use. The preparations of antitoxin originally furnished by the Department of Health were known as Nos. 1, 2 and 3 (Behring's standard), and corresponded to Nos. 1, 2 and 3 of Behring's preparations.

Number 1 contained sixty (60) antitoxin units to each cubic centimeter of the serum, or six hundred (600) units in each vial.

Number 2 contained one hundred (100) antitoxin units to each cubic centimeter of the serum, or one thousand (1,000) units in each vial.

Number 3 contained one hundred and fifty (150) antitoxin

units to each cubic centimeter of the serum, or one thousand five hundred (1,500) units in each vial.

The Department of Health is now able to furnish much more concentrated preparations than No. 1, No. 2 and No. 3, and has, therefore, decided to discontinue the preparation and use of these weaker serums. Hereafter diphtheria antitoxin will be furnished only in the following grades and amounts:

Grade No. 4.—Each vial (about 7½ c. c.) contains 1,500 antitoxin units (Behring), $1.25.

Grade No. 4A.—Each vial (about 4 c. c.) contains 750 antitoxin units (Behring), 75c.

Grade No. 5.—Each vial (about 5 c.c.) contains 1,500 antitoxin units (Behring), $2.

Grade No. 6.—Each vial (about 5 c.c.) contains 2,000 antitoxin units (Behring), $3.

Grade No. 6A.—Each vial (about 8 c. c.) contains 3,000 antitoxin units (Behring), $4.50.

Grade No. 7.—Each vial (about 3 c.c.) contains 1,500 antitoxin units (Behring), $3.

Highest Grade, No. 8.—Each vial (3½ to 4½ c. c.) contains 2,500 antitoxin units (Behring), $5.

This serum (grade No. 8) contains in different samples from 600 to 800 antitoxin units in each c. c. The amount of *serum* in the vials therefore varies somewhat; but the amount of *antitoxin* remains constant (*i. e.*, 2,500 units).

Antitoxin Serum for the treatment of diphtheria, produced in the laboratories of the Department of Health, is now offered for its sale and distribution in the Boroughs of Brooklyn, Queens and Richmond as follows:

1. Diphtheria antitoxin may now be purchased by physicians for the prices named at any of the pharmacies acting as agents for this Department.

2. Diphtheria antitoxin may be procured free of charge by physicians at these pharmacies for use in cases of diphtheria among very poor people, to whom payment for the same would be a hardship, *upon the express condition that the attending physician will furnish a history of the case to the Department, upon its termination either by death or recovery.* History blanks will be furnished at the stations with the antitoxin, the druggist retaining the attached stub as a voucher for the antitoxin delivered free.

3. Diphtheria antitoxin will be administered free in any case

of diphtheria occurring in the city, *upon the request of the attending physician.* Such requests should be made to the borough offices as follows:

In Brooklyn—To the Borough office, 28 and 30 Clinton Street —Telephone, 886 Brooklyn.

In Queens—To the Borough office, Jamaica—Telephone, 51 Jamaica.

In Richmond—To the Borough office, New Brighton—Telephone, 210 Tompkinsville.

It is strongly advised that the attending physician himself administer the antitoxin, as valuable time is thus saved; or, if it seems necessary to request the services of the Department, that such requests be made by telephone and as early in the day as possible.

The attention of physicians practicing in the Borough of Brooklyn is specially directed to the changes made in this borough in the methods of distributing diphtheria antitoxin. *This can no longer be procured free of charge for use in any case of diphtheria; but only for cases among very poor people.* When the patient or his family are able to pay for the antitoxin, it should be purchased.

The pharmacies supplying diphtheria antitoxin are also provided with outfits (accompanied by the necessary blanks and circulars of information) for making cultures in cases of suspected diphtheria, for procuring specimens of sputum in cases of suspected pulmonary tuberculosis, and for procuring specimens of blood, serum, or the discharges, in cases of suspected typhoid fever. These outfits may be procured by physicians *free of charge* at any of the Department stations.

HYGIENE OF THE TEETH.

By CLEMENT B. LOWE, M. D.

It is related of Don Quixote de la Mancha that after one of his battles, in which, as usual, he was defeated, he found himself lying upon the ground rubbing his bruises and bemoaning the loss of one of his molars, which had been knocked out by a large stone. He sagely remarked, after reflecting for a while on the matter,

that to lose a molar was like losing an old friend. As we do not value our friends at their full worth until after we have lost them, so it is with our teeth; and yet there has been a great improvement in the amount of care bestowed upon the teeth by the present generation.

It is stated that there has been a marked increase in the longevity of the human race during the present century, the addition to the term of life being stated at from ten to fifteen years. Various causes have been assigned for this increase, such as better dwellings, better food, increased attention to sanitation, shorter hours of labor and labor-saving machinery, a better knowledge of disease and the remedies for combatting it, all of which are probably entitled to share in the credit of the results achieved; yet, Lauder Brunton thinks that the "credit is really due to the dentists who supply teeth to those who otherwise would not have them, so that people can continue to masticate their food for a very much longer time than before." He gives a striking illustration of the value of mastication as follows: "I had an old pony which was beginning to show signs of decay, due, I thought, to old age. The stableman noticed that the oats were passed undigested through the pony, and he proposed that his food in future should be ground and made into a mash. This was done, and the pony at once became ten years younger and went on perfectly without further indication of age." The proper mastication of the food is one of the most important links in the chain of digestion; the lack of it one of the most fruitful causes of indigestion. Sir Andrew Clark made his patients count their bites. "The rule is, the mouth contains thirty-two teeth, so that to every mouthful of animal food you must give thirty-two bites in order that every tooth shall have a chance. If the food is at all tough, you must double the number and count sixty-four."

The proper development of the teeth in the young depends upon their receiving the proper food. This for infants is, of course, the mother's milk, which contains all of the salines necessary, providing the mother is herself properly fed. This is not always the case, and the drain of earthy phosphates may be so great in the pregnant female or nursing mother that she may complain of toothache or of her teeth dropping away, and there is a proverb which says "For every child a tooth." The administration of the syrup of calcium lacto-phosphate would be of great value in such cases. Some of our poor teeth may be directly chargeable to the

character of the flour, which by fine grinding and repeated bolting has been deprived of much of its gluten and phosphates, and consists largely of fine starch. Bread of Graham flour which comprises the whole grain would be more healthful. The Scotch have shown wisdom in sticking to their oatmeal.

The eruption of the teeth is a critical period in the life of many an infant. A tooth at this time has not reached its full development, the fang has a sharp edge which, by the downward pressure of the resisting gum, presses the nerve against the bony process of the jaw-bone, making the pain suffered by these little ones far greater than is ordinarily supposed. Lancing the gums will often give instant relief, and is attended with little or no danger, provided the incision be directly down upon the tooth. The child suffers but little pain, owing to the comparative insensibility of the gums, and will frequently allow it to be done without making any resistance. Strange to say, there is much prejudice on the part of mothers to the operation, and I have been told that if the tooth is not immediately erupted after the lancing the resulting cicatrix will be harder for the tooth to subsequently cut through. This is not the case; the cicatrix upon a mucous surface is less resistant than the original tissue. A lengthwise incision along the crown of an incisor or canine tooth is all that is necessary, but an X-shaped incision should be made for a bicuspid or a molar.

On account of their temporary character, parents often give but little care to the primary set of teeth. This is a mistake, as the character of the second set depends to a considerable extent upon that of the first. The first teeth contain more animal matter and larger pulp cavities than the permanent ones, and hence are more liable to decay. How frequently the first teeth present themselves in an unsightly, decayed row, whereas decay should be an exception and not a rule. If the teeth fall out too soon, the proper contour of the jaw may be interfered with; if they remain too long they may interfere with the eruption of the permanent teeth, causing irregularities in their alignment.

The most of people recognize the importance of cleaning the teeth daily, but many think that once is sufficient, and the best time the morning. The facts are that a quill toothpick should be used after each meal and the mouth thoroughly rinsed; a more thorough cleansing with brush and alkaline tooth powder should be given before retiring. The necessity for this care is evident if we know that the particles of food which collect between the

teeth, on account of the warmth and moisture present, rapidly decay, render the breath offensive and promote the decay of the teeth. The so-called "tartar," which is largely a deposit from the saliva, also frequently does much harm, collecting principally upon the lower incisors. Candies and other forms of sugar are especially injurious if they become lodged in the crevices of the teeth, as they undergo an acid fermentation which attacks the enamel.

Tooth brushes should not be too large or too stiff, and should have the bristles projecting in different lengths. When first used it should be in an up-and-down manner, so as to remove the food remnants from the interstices of the teeth. The daily use of tooth powders containing pumice stone, charcoal or other gritty substances will injure the enamel; charcoal should be especially condemned, as it cannot be ground into an impalpable powder, and its continuous use causes the gums to assume a tattooed appearance. Strongly alkaline soaps or tooth washes are also to be condemned. The best base for tooth powders is prepared (not precipitated) chalk; it is adhesive, gives sufficient friction and at the same time acts as an antacid. We generally add some powdered orris-root, which has a pleasant flavor and a favorable effect upon the gums. The addition of any considerable quantity of astringent, such as alum, krameria or cinchona, is not wise unless there be a marked vascularity of the gums. In conditions needing an astringent tooth wash, Dr. Jas. W. White suggests the use of equal quantities of tincture of krameria and eau de cologne. He thinks the use of the old standby, tincture of myrrh, of questionable value, as by its dilution the resin is deposited about the necks of the teeth, aggravating, rather than alleviating, the spongy conditions of the margins of the gums. He also suggests an excellent mouth wash for spongy and bleeding gums, viz.: Tannin, 1 dram; potassium chlorate, 2 drams; boiling water, 2 pints. In case acids have to be taken as a medicine, they should be largely diluted and taken through a glass tube, and the teeth afterward brushed with tooth powder or with a solution of soda or magnesia. In case the gums recede a little, acids do special harm, as they attack the dentine below the enamel.

An aching tooth should never be extracted if possible to save it by treatment and filling, because not only is the tooth lost, but the opposing tooth in the other jaw loses its antagonist and has nothing to grind against, and may, therefore, rise beyond the line of the

adjacent teeth; the pressure produced during mastication seems to be essential to the retention of the teeth in their natural positions. It is a wise thing, therefore, to frequently give a child a crust of bread to exercise its teeth upon, notwithstanding soft food may agree with it.

The proper material for filling teeth must be left to the dentist's discretion and the state of our pocket-books; it can be said, however, that generally the best material is gold. Few would be so foolish as the lady of fashion who had two small holes drilled in her upper incisors and diamonds inserted.

Various dental anodynes are in use, the principal ones being tincture of opium, oil of cloves, carbolic acid and cocaine; they all act by depressing the peripheral terminations of the sensory nerves, opium in addition impairing their conductivity. Carbolic acid and cocaine have also a local anesthetic effect. A caution should be given about the free use of cocaine, as various untoward effects depending upon some peculiar individual idiosyncrasy have been numerous of late. The drug in small doses is generally a heart stimulant, but sometimes acts as a heart depressant. Piscidia erythrina (Jamaica dogwood) in the shape of a saturated tincture is said to be also an excellent anodyne; it can also be given internally for its hypnotic effects. Experiments regarding it are desirable.

Dangerous hemorrhage after the extraction of a tooth is not frequent. In several cases I have been successful, after others had failed, by the application upon moistened absorbent cotton of powdered subsulphate of iron (Monsel's salt) with continuous pressure. Sometimes the cavity is so great that there is no way of packing the cotton; in such a case pressure can be maintained by a piece of cork placed so that the opposing teeth rest upon it, the jaws being afterward tightly bandaged. Monsel's solution is not so good a preparation as the salt. In a case that came to my notice, the solution was sold by a pharmacist with a caution as to its use; the caution was not regarded, and the customer's mouth and tongue were badly constringed and blackened. An angry interview, in which considerable damages were demanded, followed. A quietus was put on this by the pharmacist, who announced $1,000 for defense, but not one cent for damages, but he lost a customer whose long tongue did him all the damage possible.—American Journal of Pharmacy.

MEDICAL EXCERPT.

By T. P. Corbally, A.M., M.D.

Prophylaxis of Tuberculosis was the subject of an interesting report (La Progrès Médical, May 7) by M. Grancher. He said, as regards hospital treatment of tuberculosis, the final decision will no doubt be: "Les tuberculeux à la campagne." The entire report constitutes an important and decisive period in the history of tuberculosis and its treatment.

The following conclusions were presented, not only in the name of M. Grancher, but in those of the commission composed of MM. Reoussel, Bergeron, Besnier, Brouardel, Colin, Magnan, Monod, Motet, Napias, Nocard, Proust, Roux and Vallin. The following are the conclusions:

1. The Academy confirms the spirit of these conclusions and of its vote in 1890 which designated three prophylactic measures:

(a.) All the sputa should be collected in a handkerchief or in a vessel used for that purpose.

(b.) In order to avoid the danger from infected dust, washing or wiping the floor with a damp cloth should be used instead of a broom.

(c.) All the milk used, no matter from what source obtained, should be boiled before being used.

2. As regards the family, the Academy recommends to all physicians a continued use of measures of protection against the spread of the disease from the moment that tuberculosis makes its appearance; physicians are also advised to maintain, as far as possible, the tuberculous patient removed from all outside influence, in order to obtain an early diagnosis and to adopt an appropriate treatment.

3. For the army, the Academy demands a special reform, suitable to cases of tuberculosis in the first stage of the disease, and before the expectoration of bacilli begins, and a stringent reform from the moment the sputa is found to contain the bacilli of Koch. The commission also appeals specially to commanders and to the directors of the sanitary service to permit the enforcement, in all barracks and hospitals, of the three measures mentioned above.

4. The school, the workshop, the store, etc., under the authority of the teacher, the director, the chief of the department, etc., are reminded earnestly of the importance of this question of hygiene, and of the simplicity, the facility of the means sufficient to realize the efficiency of combating the extension of tuberculosis, which menaces the health of all families.

5. The Academy approves the conclusions formulated in the report of the Hospital Commission in so far as it refers to patients and the hygiene of the hospitals, namely:

(a.) The separation of tuberculous patients in pavillions or in separate departments while awaiting the creation of new sanitaria.

(b.) Antiseptic measures are to be employed in all tubercular wards and in rooms used in common, particularly in the cleansing of the floors and in the prevention of dust caused by sweeping.

(c.) Improving the condition of the nurses by increasing their remuneration and gaining a better class of service, and by securing a retreat for those who have filled a term as competent sanitary infirmarians.

6. The Academy approves the restrictions imposed by the law and the new measures enacted against the use of the muscular flesh of tuberculous animals; the seizure of all such diseased meat and its destruction ought to be allowed, with some restrictions to the cases in which the disease is evident. It further recommends to those who raise cattle the use of tuberculin for diagnosis, and the elimination, by the slaughtering of all their animals when found to be even slightly tubercular, and still comparatively free from danger of spreading the disease.

7. Finally, the Academy, wishing to emphasize the unusual interest which it attaches to the continuance of its work in favor of the prophylaxis of tuberculosis, approves the formation of a new and permanent commission, to be called: "Commission de Prophylaxie de la Tuberculose," the object of which will be to encourage and to harmonize the efforts employed to prevent the spread of the tubercular bacillus.

POLYMORPHOUS ERYTHEMA.—M. Liégois, de Bainville-aux-Saules, has presented to the Académie de Medecine (La France Médicale, May 27) an important note on the causes and the treatment of polymorphous erythema. He sets aside the nodular, the papular, the syphilitic and the pustular forms of erythema and

classes all the cases of polymorphous erythema under the following heads:

1. Polymorphous erythema arising from moral causes.
2. Those having their origin in rheumatic causes.
3. Those having the characteristics of an epidemic.
4. Cases arising from physical exhaustion, as may be found in convalescence from infectious diseases, as septic, tuberculous, blenorrhagic urethretis. The different methods of treatment that he has employed have convinced him of the great value of iodide of potassium in all these forms of polymorphous erythema.

OIL FOR COLLYRIA.—M. Penas, in a communication to the Académie de Médecine (La France Médicale, 27th May), gives the results of the researches made under his direction by M. Serini, on the value of olive oil and huile d'arachide as a menstruum for the alcaloids employed in opthalmic therapeutics.

These experiments warrant the following conclusions:

1. The solubility of the alcaloids themselves and of their fatty constituents (stearates) in the oil purified and sterilized.
2. The perfect aseptic properties of the solutions.
3. Their stability, the esserine not being changed into ruberessine.
4. Their greater activity, or at least their efficiency quite equal to that of the watery solutions.
5. Their harmless action on the epithelical of the cornea in the application of cocaine in this oily solution.
6. Finally, and above all, the facility of application, the certainty of the penetration of these collyria into the conjunctival culde-sac and the avoidance of blepharospasm, which in the case of penetrating ulcers of the cornea and in operations for cataract might be attended with results more or less serious to the eye.

DIPHTHERIA.—M. Souvestre has given to the Société Médicale des Hopitaux, the statistics of diphtheria as registered in the children's hospital under his direction. Of 580 cases, 101 died; among this number, 43 died within the first twenty-four hours after admission. The streptodiphtheritic cases caused three times as many deaths as the simple diphtheritic.

M. Souvestre found that all the sick in the service, with very few exceptions, received, on entering, an injection of serum; in children from two to three years of age he injected a dose of

20, c. c.; however, when it was thought necessary to obtain an immediate and decided impression, it was often necessary to use 30, c. c. for the first injection.

Besides the injection of serum, he used a free application to the throat and nasal passages of Labaroque's solution, 5 per cent.; or, when the case was very severe he used a solution of chloral of 1 per cent.

In cases of diphtheria associated with persistent false membrane, he made a local application of tincture of iodine, or of powdered salol to the tonsils.

The number of patients attacked with croup, with or without angina, that have come under observation this year, has been 311. In 203 of these tubing was used to the exclusion of all other means; of this number, 80 died, 21 of them twenty-four hours after entering, which made the mortality in these cases 19.7 per cent.; and for the reduced mortality, 11.41 per cent.

In 21 cases tubage was followed with tracheotomy and 17 children were subjected to tracheotomy from the beginning.

Antidiphtheritic serotherapy, then, is not all sufficient; it does not cure with certainty all infected cases, and is specially ineffective against the combined attacks of streptococus with the bacillus of Loeffler. What is particularly surprising is, that there is no effort to note the degree of vitality, and the power of resistance previous to the infection, a circumstance that should have an important influence in the prognosis of all diphtheritic cases.

TRUE AMERICANS.—Physicians and pharmacists, says "The National Druggist," like the masses of the people, have tired of the arrogation of superiority implied by the announcements of foreign manufacture, and are revolting against them. This spirit is especially commendable at the present time, when a vast wave of patriotism is rolling over the land, making the North and the South, the East and the West as one band of brothers by its magic influence. The Antikamnia Chemical Company, of St. Louis, in all of its advertising matter, whether through the journals or by circular, takes particular pains to impress upon physicians and pharmacists that its goods are made in America, by Americans, and for American use. This enterprising company realizes that the words "Made in Germany" or "Made in

France" no longer possess the influence and meaning they once had. The people of this country no longer scorn or underrate the products of their own native laboratories and work-shops.

GLYCOZONE, according to a recently reported case by Dr. Louis A. Kenzla, of San Francisco ("New England Medical Monthly" for February), is an efficient antiseptic and curative agent in chronic gastritis. A particularly obstinate case of two years' duration, in which much other medicine had been used without benefit, on July 3, 1896, was put upon glycozone one-half, then one drachm, well diluted, twenty minutes before meal time.

In a few days he said he felt better; within a week he repeated the assertion. To the utter astonishment of myself and his friends, one, two, four and even six weeks passed, without a recurrence of his severe symptoms.

Previous to the use of glycozone the only perceptible relief came from the use of small doses of diluted hydrochloric acid between the attacks of indigestion, and a solution of cocaine and morphine during the paroxysm.

After beginning the use of glycozone, the acid was continued a few weeks, after meals, then left off entirely. No other medicine was used, except occasionally a pill of aloin, belladonna, strychnia, cascara, when bowels were sluggish.

To him glycozone proved the greatest boon, and to me the relief given was simply wonderful.

It is useless to add that I have used the remedies in many cases since, and have met with excellent and even astonishing results.

SYPHILIS.—When a patient presents himself for treatment, Dr. W. F. Glenn, Clinical Professor of Genito-Urinary and Venereal Diseases, Medical Department Vanderbilt University (Southern Practitioner), says he should be placed upon the following recipe (which fully meets all indications) until the symptoms disappear, his appetite is improved and a general feeling of vigor and activity exists:

R. Hydrarg. bi-chlor.....2 grains.
Iodia .....6 ounces.
M. Sig.—One teaspoonful after each meal.

Iodia is prepared by Battle & Co., St. Louis, and contains extracts from the green roots of stillingia, helonia, saxifraga and

menispermum. Each fluid drachm also contains five grains iod. potass. and three grains phosphate of iron. The tendency of the profession is too much toward discarding everything but mercury. I have often seen mercury alone, or combined with iod. potass., fail to heal secondary ulcerations, which speedily disappear when combined with vegetable alteratives. It is, therefore, best to have the good effects of the only three reliable remedies at once, viz., mercury, iodide and vegetable alteratives, as obtained in the above prescription. (Lectures on Venereal Diseases.)

SELF-SHAMPOOING.—"The scalp can be thoroughly cleansed without assistance, if done in the following manner:

"Have ready a cake of Packer's Tar Soap, a soft nail brush and a basin containing warm water. Part the hair in the center from forehead to nape of neck; braid or pin up one side of the hair; soap the nail brush and rub the scalp thoroughly from beginning to end of part; divide the hair again about an inch lower and cleanse as before; so continue until that side of the head is quite clean. Use only enough water to make a good lather of soap. Pin up the side that has been washed and treat the other side in the same way. Now give the scalp a good lather of soap, and rub well with the fingers of both hands. When the scalp is finished, soap and wash the long hair as you would a handkerchief. Rinse in warm water, then in cold water. Tie up the hair in a towel for a few minutes, shake out and dry in the sun."

Dry or scurfy conditions of the scalp require, after shampooing, the application of a few drops of oil of sweet almonds, or some approved oily hair tonic.

A NEW NAME.—While the influeza was at its height in New York recently, in a family where all were suffering with the disease, a boy baby was born, and by unanimous consent he was named Agrippa.—American Hebrew.

A USEFUL CHART.—Write to The Imperial Granum Food Company, New Haven, Conn., for sample copies of their new "Nursing World Fever Chart," for recording the vital signs and other information relating to the baths given in the treatment of fever cases. It is very complete and will be found especially useful in typhoid fever.

THE MEDALS, JETONS AND TOKENS ILLUSTRATIVE OF SANITATION.

By Dr. H. R. Storer, Newport, R. I.

SUPPLEMENT V.*

VI. SEWERAGE.

England.

2467. Obverse. Illustration of the mode of administering an enema. Exergue: "Trade Mark." Reverse. Man upon a chamber utensil. Exergue. "Patent." White metal. 18.29mm. In the Government collection.

Holland.

The following, though allegorical, may be given in this connection. They are satirical, upon the Peace of Utrecht:

2468. Obverse. Three men with their nates exposed, relieving themselves beside a wall. Above one of them: I Am Please. Above the second: Si Vous Plait. Above the third, who is smoking: Ik Maek Mee (me too?). Inscription: Concordia Res Parvae Crescunt Exergue: Noot Breekt Isen (Necessity breaks iron) Pax Outrec . | 1713 Reverse. The three, more decently clothed, destroy the heaps they have made. Their respective legends are: Fie What Is That.—Sans Regard—Wat! Behaegt U Dat (Do you like that?) Exergue: Dat Sol Ie Hir Bewisn (He will prove it here.) Pax In Trec 1714 Inscription: Discordia Maxima Dilabuntur. (The inscription and legends on both faces are all reversed.) Silver. 28.44mm. Revue belge de num., XVIII, 1862, p. 412; *Ibid.*, XXXIV, 1878, p. 112, pl. VIII, fig. 27. In the Brettauer collection.

2469. Obverse as preceding, save Pleased—S 'Il Vous Plait Morrbleu, and in exergue Brecht. Reverse as preceding, save For Instead of Fie, and Maximal. *Ibid.*

2470. There is also a third variety. *Ibid.*

* Continued from Vol. XL., page 447.

There is a similarly indelicate medal of apparently Dutch origin, equally connected with sewerage.

2471. Obverse. A man bending over a bed, wearing night cap, and with nates exposed. Another, with large syringe, administers an enema. No inscription. Reverse blank. Lead bronzed, with copper back. 17.28mm. In my collection.

BELGIUM.

Strée.

2472. Excavations in Belgo-Roman - Franc . Cemetery, 1872. Dupriez Cat., 19, 1893, No. 845.

FRANCE.

2473. Obverse. Louis XIV, holding a sword, vomits into a chamber pot held by an Algerian, who supports his head. Behind, Pope Alexander VIII, with syringe in right hand, holds with left a bed pan, into which the King is defecating. Upon the vessel: Imm. D. D. Behind, another marked: Avenir At right, a bomb. Inscription: Necessitati Ne Quidem Dii Resistunt Exergue: Lud. M. XIV. Dit. Legat. Immunita | Et Arimiona. Al. VIII Cedente | Etiamq. Auro Pacem Ab | Alger. Petente. | 1689. Reverse. An exploding bomb, upon which three fleurs-de-lys. Legend: Se Ipsissimo Exergue: Imp. Gallic. Menestrier, Méd. de Louis Le Grand, p. 42, fig.; Van Loon, III, p. 428, fig.

Struck upon the Peace with Algiers.

ITALY.

2474. Obverse. With laurel and oak wreath, the arms of Milan, with motto: Ricordo Above: Milano Below: 1888 Inscription: Impianto Lavanderie Sociali | Ing. Ribboni * Ing. G. Chiodi. Reverse. The building and grounds. At right, a figure at half length; at left, the process of washing. 24.39mm. Rivista italiana di num., II, 1889, p. 234.

VIII. DIET.

THE UNITED STATES.

2475. Obverse. For Infants | Mellin's | Food | * And Invalids. * Reverse blank. White rubber. 29.45mm. In the Wright collection.

2476. Obverse. Spread eagle, to left, with shield, olive branch, and arrows. Inscription: U. S. Subsistence Department Reverse. One | —o— | Ration Silver plated. 17.27mm. I have impressions from Dr. B. P. Wright of Utica, N. Y.

ENGLAND.

Dr. Sir Theodore Turquet de Mayerne (1573-1655), of London.

Besides No. 1794, there is:

2477. Obverse. Clothed bust, with skull cap, slightly to left. Inscription on band: Sir Theodore De Mayerne Founder . MDCXXXIX Reverse. The arms, supporters and motto of the Guild. Inscription upon band: Company . Of . Distillers . Of . London . Below: 1852 Border, "the fruits of the earth" used by distillers. Gold (hollow). Oval. 45x57. 70x90mm. With loop. Designed by Charles Worrall. Storer, *loc. cit.*, July, 1895, No. 887. The original medal is worn by the Master (pro tempore) of the Worshipful Company. An electrotype is in the Guildhall Library collection. I owe the description to Dr. F. P. Weber of London.

Dr. Johnathan Pereira (1804-53), of London.

I previously mentioned this medal, but was misinformed as to its attribution, and was then unable to give its description.

(1981.) Obverse. Bust, loosely draped, to left. Beneath: L. C. Wyon. Inscription: Johnathan Pereira - M.D F.R.S. F.L.S. Exergue: Nat. 1804 Ob.. 1852 (an error). Reverse. Within heavy wreath of medicinal flowers and fruit: Materia Medica | - . - | Awarded By The | Pharmaceutical Society | Of Great Britain | - . - | Prize Medal | Founded 1854 Exergue: L. C. Wyon Silver. 36.56mm. Storer, *loc. cit.*, June, 1895, No. 809. I owe photographs to Mr. Lewis Ough, of Leicester, England.

There is also the following Society medal:

2478. Obverse. Crossed laurel branches, tied by ribbon, surmounted by an imperial crown, hinged. Upon the wreath, a Maltese cross of white enamel, bordered with gold, and tipped with gold balls. At centre, a circular gold shield. In its field, within gold circle: Great | Prize | Honorary Inscription: International Exhibition For Hygiene, Pharmaceutics and Foods | London 1893. Gold. 40.60mm. With ring for suspension. Storer, *loc. cit.*, Jan. and April, 1897, No. 1115. In my collection.

FRANCE.

Dr. Denis Papin (1647-1710), of Paris.

Besides Nos. 369 and 1983, there is:

2479. Obverse. Within field, a balloon. Le Denis Papin | Le 7 8 bre 1870. Inscription: Parti De La Gare D'Orleans. Monté Par Le Citⁿ Domalin | (rosette) Reverse. A spread pigeon. Inscription: Les Messagers Partent Par Balloon - poste Et Rap-

portent Les Nouvelles * | Par La Photostenographie | Directeur Steenakers Copper, lead. 17.27mm. Edge of obverse chased; of reverse beaded. Van Peteghem, Médailles de 1870-1871, Nos. 340-1. In my collection.

IX. FAMINE.

ENGLAND.

There are a number, of failures of harvest, which may be found in Atkins.

Of British India, besides No. 651, there is:

2480. Obverse. Relief ½ Seer Token 1876 Copper, with circular hole in centre.

FRANCE.

2481. Obverse. (Napoleon III.) Reverse. A La Colonie De Mettray, La Ville De Tours Reconnaissante. Inondation De 1856. Bronze. 24.37mm. Baer Cat., Jan., 1898, No. 107.

2482. Inondation 1840. Fondation Seculaire D'Une Messe A Fourvières. 16x23. 25x35mm. *Ibid.*, No. 106.

GERMANY.

Dr. Rudolph Ludwig Karl Virchow (1821-), of Berlin.

Besides Nos. 401, 1986 (2223), and 1987-9, there is:

2483. Obverse as that of No. 1986. Reverse. The City of Berlin, &c. (Reverse of the large medal of the Xth International Medical Congress.) Silver, tin. 44.70mm. In the Brettauer collection.

Saxony. 1772.

2484. Like No. 584 (P. and R. 119), save on reverse 1772 merely, 1. Sch: Haber. 5Th., and 1. lb. Brod 20 dt. Plated. 27.42 mm. In the Government collection. Communicated to me by Dep. Surg. Gen. Huntington, U. S. A.

2485. Like No. 590 (P. and R. 141), save on obverse Dank and Und, and in exergue: I. C. Reich. Invent: and on reverse Seegensreich, Kre, Pfe, and instead of Joh: Ch: Reich, Furth. Zinn. 21.33mm. In the Government collection.

2486. As No. 516 (P. and R. 157), save Ps. 116 instead of Ps. 136. In the Government collection.

Halle. 1847.

2487. Obverse. Man, woman and two praying children around a table with empty plates and basket. Stedmann F. On scroll above: Erinerung A. D. Theure Zeit. Exergue: Unser Täglich Brodt | Gieb Uns | Heut! Reverse. In field: | Sch: | Weizen | 5Th: 20 Sgr: | Roggen 5Th: | Gerste 3Th: 20 sg: | Hafer

2Th: 5 sgr | Kartoff. 2Th. | Erbsen 5Th: 1 lb. Brod 2 sgr: Upon scroll above: Im Frühjahr 1847 Kostete 33.52mm. In the Government collection.

Wurtemberg.

2488. Like No. 608 (P. and R. 194) save in exergue of obverse, instead of I.M.A.D.F. there is merely, within an oval, I A D Silver. 20.32mm. Edges milled, rim engrailed. In the Oettinger collection.

Destruction by Flood.

2489. 1854. Overflow of the Oder. Reverse, inscription.

Nuremberg. 1784.

2490. Like No. 663 (P. and R. 169), save that on reverse the transverse inscription is absent. Tin. 29.45mm. Communicated to me by Messrs. Chapman of Philadelphia.

Destruction by field mice.

Besides Nos. 692-4, there is:

Nuremberg. 1773-4.

2491. Obverse. A house, with trees; full harvest to right, mice to left. Inscription in script: Gott gab der Theurung ein Gebot* Und Strafte uns mit Maüse Noth 1773 Reverse. A monument irradiated by the sun and a peasant with scythe. Above, upon band: In Sachen Inscription, in script: Gott strafte unser Land * Jetzt reicht er seine Hand 1774 * Tin. 29.45mm. Edges milled. I have impressions from Dr. Brettauer.

ITALY.

Padua. 1540.

(2228.) Obverse. Bust, to right. Inscription: Hier. Cornelius. Reverse. A person upon raised platform, distributing food. Legend, upon the platform: Deo Opt. Fav. Inscription: Pavpertatis Patavinae, Tvtor Exergue: M. D. XXXX. Silver, bronze. 23.36mm. In the Government collection. I am enabled now to give its description through the courtesy of Dep. Surg. Gen. Huntington, U. S. A.

X. EPIDEMICS.

1. *Generally Considered.*

ENGLAND.

Dr. Richard Mead (1673-1754), of London.

Besides Nos. 699 and 1817 there is:

2492, Obverse. Bust, facing. Below: Dr. Mead. Reverse

blank. Wedgwood. 48x67. 75x106mm. By Flaxman. Storer, *loc. cit.*, April, 1895, No. 881.

Dr. Thomas Sydenham (1624-89), of London.

Besides No. 700, there is:

2493. Obverse. The arms of Birmingham, with V.R. crowned. Inscription, upon scroll: Queen's College Birmingham (Mason's College, Queen's Faculty of Medicine.) Reverse. A wreathed branch of oak, about which are wound scrolls inscribed: Galen—Hippocrates—Sydenham—Hunter—Harvey From it hangs a lamp, upon which: Alere Flammam. A female feeds it. Bronze. 26.42mm. Cut by John Hardman & Co. Storer, *loc. cit.*, Oct., 1895, No. 915. Communicated to me by Mr. A. H. Lyell, of London.

FRANCE.

Louis Pasteur (1822-1895), of Paris.

Besides Nos. 709, 1199, and 2292-3, there are:

(2047.) Obverse. Bust, to right. Beneath, near shoulder: A. Borrel. Inscription: L. Pasteur—Mbre. De L'Institut. Reverse. Within circle: 5 Et 17 Mai | 2 Juin 1881 | Inoculation Préventive Des Virus Charbonneux | A Eté Pratiquée Avec Succès | Par | Mr. Pasteur | Assisté De M. M. Chamberland Et Roux | Avec Le Concours | De Mr. Rossignol |—Pouilly Le Fort | —Inscription: Société D'Agriculture De Melun | (rosette) Bon. De La Rochette, Pt. E. Redmond. H. Garnot, Ve Pts. Bancel, Blavot, Sec. C. Baulant, Trés. (rosette) Bronze. 32.50mm. Edges beaded. In my collection.

(2294.) Obverse. Bust, three-quarters to left. Beneath: A. Patey Inscription: Louis . Pasteur . Membre . de . L'Academie . des . Sciences . | et . de l'Academie . de . Medecine. Reverse blank. Bronze. 60.97mm. In the Weber collection.

2494. Obverse like No. 2292, save that the artist's signature is in script and the date 1881. Reverse blank. Bronze. 92.145 mm. Cast. Weber, English Medals by Foreign Artists, p. 26. In the Weber collection.

2495. Obverse. Head, less wrinkled than that of preceding, to right. Alphée Dubois Inscription: Louis Pasteur Membre de L'Academie Des Sciences. Reverse. Within field, in Roman script: L'Industrie | de la soie | à Louis Pasteur | l'illustre régénérateur | de la sericulture | . Centenaire | d'Olivier de Serre | Mai 1882. Inscription, in Roman: Union des Filateurs et Mou-

liniers. Région d'Aubenas. Bronze. 32.51mm. I have the description from Dr. Weber, of London.

2496. Obverse. Nude head, to right, like preceding. Below neck: Alphée Dubois 1895. Inscription: Louis Pasteur Reverse. Né Le 27 Décembre 1822 | A Dôle (Jura) | Mort Le 28 Septembre 1895 A | Villeneuve L'Etang (Seine Et Oise) | Dissymetrie Moléculaire, | Fermentations, | Etudes Sur Le Vinaigre, | Générations Dites Spontanées | Etudes Sur Le Vin, | Etudes Sur Les Maladies | Des Vers A Soie, | Etudes Sur La Biere, | Virus-Vaccins, | Prophylaxie | De La Rage. Bronze. 44.68mm. Struck. In the Weber collection.

2497. As No. 709, save on reverse: Cast by the Henry Bonnard Bronze Co. | New York 1893. Bronze. 106.168mm. In my collection.

BOSTON MEDICAL LIBRARY AUG 12 1899

2498. Obverse. Bust to left, in profile, with cloak and cap, as in No. 2293. Behind neck, incused: O. Roty. Inscription: Lovis Pastevr. Reverse. A flaming torch. Within field, in six lines, incused: Povr La Science | La Patrie | L'Humanite. Silver. 13.21 mm. Struck at Paris Mint. In the Weber collection.

X, II. *The Plague.*

England.

British Colonies, Hong Kong—1894.

2499. Obverse. A woman bending over a sick person on a stretcher, supported by a bare-headed soldier, who wards off an arrow-thrust from the Angel of Death. Beside him a broom and pail. At left, two Chinese letters. At right: A Wyon Sc Exergue, upon a scroll: 1894. Reverse. For | Services | Rendered | During | The Plague | Of | 1894. Inscription: Presented By The Hong Kong Community Gold, silver. 22.35mm. Edge of reverse beaded. Attached by loop and ring to a striped red and yellow ribbon. Military and Naval Medal Magazine, Feb., 1896, p. 62, fig.; Storer, *loc. cit.*, Oct., 1897, No. 1184. Given to officers and privates of the Shropshire Light Infantry and of the Royal Engineers, for services during the epidemic.

2500. As preceding, save signed by F. Bowcher. *Ibid.*, No. 1185. Silver electrotype. The above was designed by Frank Bowcher while in Mr. Wyon's employ.

Holland.

Peter Adrian Van Der Werf, of Leyden.

Besides Nos. 744, 1818, and 2229-30, there is:

2501. Obverse. Bust, to left, with rhomboidal decoration (siege token?) suspended from neck. Inscription: Pieter Adriaanszoon Van Der Werf. Reverse. Crossed olive branches tied by ribbon, and touching above. No inscription. Tin. 32.50mm. In my collection.

BELGIUM.

Mons.

2502. Obverse. St. Benedict, three-quarters erect, to left. Beside him a shield, upon which: S.M.Q.L.I.V.B. I H S. V.R.S.N.S. M.V. Beneath which, in the shape of a cross; C and in the quarters: G.S.P.B. Inscription: S S. Pa-ter Benedic. Reverse. A crowned female, facing, seated, with small figure in her N D S M D, lap, and flowering bulb in right hand. A M building to right. Brass. Oval. 27x29. L 43x46mm. In the Government collection.

FRANCE.

Marseilles, 1775.

2503. Obverse. Bust, to right. Beneath: N. Gatteaux F. Inscription: Ludovicus XVI. Rex Christianiss. Reverse. A laden sloop, discharging. Upon its side: N.G.A. At right, a turreted building. Exergue. Consilium Massiliense | Salutis Publicæ Custos MDCCLXXV. Silver. Octagonal. 21.34mm. Edges chased. In my collection.

Do. 1819.

2504. Obverse. Head, to right. Beneath: Gayrard F. | De Puymaurin D. Inscription: Louis XVIII Roi De France Et De Navarre. Reverse. Within oak branches tied by ribbon: Massiliensivm | XVI - Viris | Sanitati-Tvendae | Ob. Servatas | Ab. Imminente | Pestilentia | Gallias | - MDCCCXIX | Lvdo. XVIII Reg. Above the loop of ribbon: De Puymaurin D. Bronze. 43.68mm. In my collection.

Paris, 1702.

2505. Obverse. Female erect, to left, with halo, and wand in right hand. Beside her, at right, two sheep. In background, the city of Paris. Exergue: 1702. Reverse. A procession, bearing the relics of St. Genevieve. In foreground, sick persons. Legend: Nec . Nos . Labor . Iste . Gravebit . Silver. 19.29mm. Edges milled. I have impressions from Dr. Brettauer.

Valenciennes.

2506. Delivrée De La Peste L'An 1008. Consécration De L'Eglise, Le 4 Mai 1864. Bronze. 21.32mm. Baer Cat., Jan., 1898, No. 104.

GERMANY.

Dr. Joachim Kammermeister, Jr. (1534-98), of Nuremberg.

(913a.) Obverse. Bust, to right. Beneath: Werner Fec. Inscription: Joach. F. Camerarius. Patr. Nov. M. D. Coll. M. Conditor. Et Decan. Perp. Reverse. Within an oak wreath: Collegium Medicum Norimbergense Duo Saecula Feliciter Perstans. - Die XXVII. Maii.)ICII)CCLXXXII (1792.) Silver, tin. 29.47mm. Rudolphi, p. 30, No. 115; Kluyskens, I., p. 176; *Ibid.*, Cat., p. 85, No. 106; Duisburg, p. 107, CCLXXXVIII, 1; *Ibid.*, Cat., p. 31, No. 383; Entwurf einer Geschichte des Kollegiums der Aerzte in der Reichst. Nürnberg, 1742. In the Government collection.

2507. Obverse. Bust, to right. Legend: Qvi Quasi Putredo Consumendus Sum. Reverse, blank. Tin, lead. Oval, 26.43mm. Duisburg, p. 107, CCLXXXVIII, 2.

2508. Obverse. Bust, to right. Beneath: M:C. (Matthaeus Carl). Legend: Ego: Qui Quasi Putredo Consumendus Sum. Reverse. Three femora, crosswise, from which spring ears of grain and flowers. Inscription: Et Cum Te Consumptum Putaveris Orieris ut Lucifer. Exergue: 1562. Bronze. Oval. 21x26. 33x41mm. *Ibid.*, p. 108, CCLXXXVIII, 3.

2509. Obverse. Bust, to right. Inscription: Joachimus Camerarius D. Anno Aeta. 54. Reverse. Annae Mariae Patr. Frid. Dorvilio Matr. Mar. Modesta Cameraria Natae. Kal. Jan. St. N. Post. Hor. XI Antem. A.C. M.DC.XXXI Hagae Bat. Ludovicus Joach. F. Joach. N. Camerarius J. C. Mem. Ca(us) a D.D. Silver. 32.50mm. *Ibid.*, p. 108, CCLXXXVIII, 4.

Andechs, Bavaria.

2510. Obverse. The Virgin. Reverse. Benedictine shield, with monstrance. Brass. Oval. 13x15. 21x24mm. Helbing, XI Cat., 1895, No. 1416.

In this connection see La Catte, La Médaille de Saint Benoit, Rev. belge de num., XXXI., 1875, p. 278.

Augsburg—Benedictine Abbey of Sts. Ulrich and Afra.

2511. Obverse. Battle scene, the city in background. Reverse. St. Benedict, between his own and the Zachary shield. Brass. Cruciform. 26.42mm. *Ibid.*, No. 1586.

2512. As preceding, but oval. Brass. 26x27. 42x44mm. *Ibid.*, 4 Febr., 1895, No. 2824.

2513. Obverse. Battle scene. St. Ulrich in foreground. Reverse. St. Benedict between Sts. Ulrich and Afra. Above, the sign of the Trinity; below, the Benedictine shield. Brass. 31x48mm. Beierlein, II, 11a; Helbing Cat., 4 Feb., 1895, No. 2822.

2514. As preceding, but smaller. 23.37mm. *Ibid.*, No. 2823.

2515. Obverse. Battle scene. Beneath, the Ben. shield, with the initials I N. Reverse. Five saints. Brass. Cruciform. 26.43mm. Beierlein, II, 111; Helbing Cat., 4 Febr. 1895, No. 2825.

2516. As above, but without initials. *Ibid.*, No. 2826.

2517. As above, but oval. 26x28. 42x45mm. *Ibid.*, No. 2827.

Bavaria.

2518. Obverse. Picture of the Virgin, upon an altar. Below, in five ovals, the rosary. Reverse. St. Benedict, with shield. Brass. Oval. 20x26. 31x35mm. *Ibid.*, No. 2720.

Elend, Bavaria.

2519. Obverse. A crucifix. In background, a cloister. Reverse. Saint Benedict, between the two shields. Silver. 20x27. 31x37mm. *Ibid.*, No. 2737.

2520. Obverse. The Crucifixion, with cloister behind. Reverse. St. Benedict, between the two shields. Silver. Oval. 20x27. 31x37mm. By P. Seel. Helbing, XI Cat., 1895, No. 1450.

Kempten, Bavaria.

2521. Obverse. St. Sebastian. Reverse. The Benedictine cross. Silver. Beierlein, 1, 165; Helbing Cat., 4 Febr., 1895, No. 2753.

Maria Buchen, Wurtemberg.

2522. Obverse. The miraculous picture. Beneath, the Zachary shield. Reverse. St. Benedict, with shield. Silver. Oval. 18x22. 29x34mm. *Ibid.*, No. 139.

Maria Einsiedel, near Munich.

2523. Obverse. The Madonna. Reverse. Chapel. Silver, gilt. Oval. 26x27. 35x42mm. By P. Seel. Beierlein, II., 48; Helbing, *loc. cit.*, No. 2766.

2524. As preceding, but with variations in inscription. Brass. By P. Seel. *Ibid.*, No. 2767.

Nurenberg, 1635.

2525. Obverse. Eagle. Reverse. Angel, with two coats of arms. Inscription: PestIs BeLLa FaMes AbsInt PaX VIVIDa VIVat* (=1635.) Gold. Rappaport, Num. Offerten-Blatt, June, 1894, No. 4991.

Tegernsee, Bavaria.

2526. Obverse. St. Quirinus, with Benedictine shield. Reverse. Sts. Chrysogonus and Castorius, with Zachary shield. Brass. Oval. 24x26. 35x39mm. By P. Seel. Beierlein, I, 241; Helbing, *loc. cit.*, No. 2818.

2527. As preceding, but P. S. on obverse. Silver, gilt. Oval. 17x27. 26x42mm. *Ibid.*, No. 2818.

Wessobrunn, Bavaria.

2528. Obverse. The Madonna. Reverse. The Ben. shield. Below, the hearts of Jesus and Mary. Brass. Oval. 14x17. 22x26mm. *Ibid.*, No. 1598.

Wittenberg, 1538.

2529. Somewhat similar to Nos. 833-5 (P. and R. 259-6), but much larger. Obverse. The Brazen Serpent. Inscription: Fac. Serpentem. Ereum. Et. Pone. Pro. Signo. Percussus. Eum. Aspexe(r)it. Vivet. Num. ZI. 2. Reverse. The crucifixion. Above the cross: *I*Pe**Z* Inscription: Peccata. Nostra. Ipse. Pertulit. In. Corpore. Suo. Super. Lignum. Ut. Peccatis. Mortui. Iusticia. Vivam. Silver. 44.70mm. By Hohenauer. In the Brettauer collection.

Do. 1551.

2530. Obverse. As No. 837 (P. & R. 263). Reverse. The crucifixion. Legend: Ita Per Jesum Christum Gratia Propagatur In Omnes Romaos. Lead. 24.37mm. In the Government collection.

AUSTRIA.

Hermannstadt, Hungary.

2531. 1602. Gold. Walla Cat., Oct., 1895, No. 183.

Salzburg. Abbey of Nonnberg.

2532. Obverse. Reliquary, with head of St. Ehrentrude. Reverse. Shield of St. Benedict. Silver, gilt. 21x25. 33x39mm. Helbing Cat., 4 Febr., 1895, No. 2796.

SWITZERLAND.

Einsiedeln, Canton Schyz.

2533. Obverse. Miraculous portrait. Reverse. St. Bene-

dict and shield. Beneath, at left: I N Silver. Oval. 16x19; 25x29mm. *Ibid.*, No. 2733.

There are, in addition, a number of similar medals and tokens not given by Pfeiffer and Ruland in their "Pestilentia In Numis." Many of them will be found in their "Deutsche Pestamulste."

ITALY.

Camerino.

2534. Obverse. Head of St. Anastasius, irradiated, to right, with open mouth. Reverse. Imago S. Anast. Mon. Et. Mart. | Cvivs. Aspec. | Fvgari. Dæm (ones). Morbosq (ue). Repelli. Acta | 2 Concil. Nic. | Testant. | Romæ. Brass, in silver setting. Oval. 50x59. 32x37mm. Helbing Cat., 30 April, 1894, No. 1131. In my collection.

Milan.

2535. Obverse. Bust, with cap, to right. Inscription: Imp. Caes. Carolo. V. Christ. Reip. Instaurat. Av. Reverse. Hygeia feeding serpent upon an altar, between ornate columns. Inscription: Salvs (rosette) — Publica Van Mieris, II, p. 340, fig.

Venice, 1576.

2536. Obverse. The doge and another kneeling before Christ. Legend: Parca Populo Tuo Exergue: 1576. Reverse. A temple. Inscription: Aloysii Mocenigo Prin. Munus. Exergue: Redemptori | Votum. Copper. 21.34mm. In the Government collection.

Do. 1577.

2537. Obverse. The doge kneeling before Christ. Inscription: Seb. Venerio. Prin. Munus. Exergue: Anno I. Reverse. Boats in harbor. Legend: Magna Dei Misericordia. Supno. 1577. In the Government collection.

Do.?

2538. Obverse. The doge kneeling to St. Mark. Inscription: | S. M. Ven. Nicol. Cont. Dux. Exergue: | V. M. | Reverse. A man kneeling before a church, over which the Virgin. Inscription: | In Tribulatione Dilatasti Mihi Exergue: | Anno | I | Silver. 23.37mm. In the Government collection.

Do. 1784.

2539. Obverse. The winged lion, with halo, facing. Inscription: Sanctvs Marcvs Venetvs * Exergue: MDCCLXXXIV Reverse. (Rosette) | Salvte | Illirio Restitvta | Milit. Benemeren | Ex S. C. | (rosette) A: Schabel F. Gold. 22.35mm. I have

impressions from Dr. Brettauer. Conferred upon the Venetian soldiers who had served as a sanitary cordon against the plague in Montenegro.

X, III. *Smallpox.*

South America.

Brazil.

Pirahy. 1887.

2540. Obverse. Within circle: Ao | Sargento | Jose | Augusto | (elongated rosette) Inscription: A Camara Municipal Do Pirahy —*— Reverse. Epidemia | De | Variola | Na | Barra Do Pirahy | —*— | 1887 14.22mm. Storer, *loc. cit.*, April, 1895, No. 821. I owe metallic impressions to Mr. Julius Meili, of Zurich.

2541. As preceding, save on obverse: Ao | Subdelegado | Fructuoso | Gil | Goncalves | (elongated rosette). 14.22mm. *Ibid.*, No. 822.

2542. As preceding, save on obverse: Ao Praca | Jose Maria | Fernandes, and in exergue three stars. 14.22mm. *Ibid.*, No. 823. Of these also I have impressions from Mr. Meili.

England.

Dr. John Freind (1675-1728), of Oxford.

Besides Nos. 890-01, there is:

2543. Obverse. Bust. Beneath: Dr. Freind. Reverse blank. Wedgwood. Oval. 47x66. 75x106mm. By Flaxman Storer, *loc. cit.*, April, 1895, No. 860.

France.

See under Germany, Mesmer.

Germany.

Dr. Friedrich Anton Mesmer (1723-1815), of Meersburg, Baden.

Besides Nos. 893 a, b there is:

2544. Obverse. Bust, to left. Beneath: Lassagne. Inscription: Fred. Ant.—Mesmer Reverse. Within field: 112me Anniversaire | De La Naissance | De Mesmer | — | Prémière Célébration | A Paris, Le 23 Mai 1846. | Sous La Présidence De Mr. Le Bon Dupotet. | (engraved) C. A. Simoneau Legend: La Nature Offre Un Moyen Universel De Guerir Et De Preserver Les Hommes. (rosette) Bronze. 18.29mm. In the Government collection and my own.

X, IIIa. *Inoculation.*

ENGLAND.

Dr. Sir Hans Sloane (1660-1753), of London.

Besides Nos. 909-10, there is:

2545. Obverse. Bust, facing. Beneath: Sir Hans Sloane. Reverse blank. Wedgwood. Oval. 47x66. 75x106mm. By Flaxman. Storer, *loc. cit.*, April, 1895, No. 883.

(To be Continued.)

A SIMPLE TEST FOR THE PURITY OF WATER.—The "Massachusetts Medical Journal" for May quotes from "Health," for persons who can not command chemical analysis, the following simple tests for the purity of water:

Fill a bottle made of colorless glass with the water; look through the water at some black object; the water should then appear perfectly colorless and free from suspended matter. A muddy or turbid appearance would indicate the presence of soluble organic matter, or of soluble matter in suspension. It should be "clear as crystal."

Empty out some of the water, leaving the bottle half full; cork up the bottle and place it for a few hours in a warm place; shake up the water, remove the cork, and critically smell the air contained in the bottle. If it has any smell, and especially if the odor is in the least repulsive, the water should be rejected for domestic use. By heating the water to boiling an odor is sometimes evolved that otherwise would not appear.

Pure water should be tasteless and remain so after being warmed. It should also be odorless; but, since the delicacy of smell and taste varies greatly, sanitarians attach special importance to Heisch's test for sewage contamination or the presence of putrescible organic matter. A clean pint bottle is filled three-fourths full of the water to be tested, and in the water is dissolved a teaspoonful of the purest sugar—loaf or granulated sugar will answer—the bottle is then corked and kept in a warm place for two days. If in from twenty-four to forty-eight hours the water becomes cloudy or muddy, it is unfit for domestic use. If it remains perfectly clear it is probably safe to use.

EDITOR'S TABLE.

SANITARIAN, JULY, 1898.

☞All correspondence and exchanges, and all publications for review, should be addressed to the Editor, Dr. A. N. Bell, Brooklyn, N. Y.

THE RECURRENCE OF YELLOW FEVER at McHenry, Mississippi, should be a sufficient reminder to Congress to promptly pass the Hepburn-Caffery Quarantine bill (published in our June number). It is alike necessary as a protective measure against senseless shot-gun quarantines as against the extension of the disease, and the more on account of the increased liability to additional outbreaks of the fever on account of the massing of troops in Tampa and other localities where the disease has prevailed heretofore.

The mere voluntary agreement of the health authorities to enforce the regulations adopted at the Atlanta Convention is not at all likely to control the inhuman propensity of panic-stricken communities, who limit their means of self-protection to efforts to confine other people to infected localities. The only safety against such inhuman efforts, as also for the rescue of people, divested of infective material from infected places, consists in a pre-organized and properly equipped quarantine, with plenary power, such as that for which the bill referred to provides.

Moreover, with regard to the danger of yellow fever, Surgeon-General Geo. M. Sternberg has written a letter to the editor of the "Army and Navy Journal" in which he says:

"History teaches that when a considerable number of unprotected persons are exposed in a yellow fever infected locality during the months when this disease is most prevalent (May 1 to Nov. in the latitude of Havana) an epidemic almost infallibly results. In the last week in April of last year there were 17 deaths and 70 new cases of yellow fever in the city of Havana. Now, suppose that we had a similar number of cases at the same season in New Orleans and that 20,000 strangers from the North should

go there to spend the summer, what would be the result? All past experience supports the belief that a majority of them would have yellow fever, and that from 20 to 40 per cent. of those taken sick would die.

"This is what I anticipate would happen if we should send an army to occupy Havana, or any other infected seaport on the coast of Cuba during the summer months. If, however, these troops could be camped upon high land in the interior, and circumstances were such as to enable them to comply with all of the exactions of modern sanitary science, I am of the opinion that our loss from yellow fever would not be serious. But in time of war military commanders are expected to take their troops to the points occupied by the enemy, and a picnic in the interior with frequent changes of camp, etc., is perhaps not exactly what we may expect.

"I am not an alarmist, but I believe in looking facts fairly in the face."

NEWTOWN CREEK NUISANCE, BOROUGH OF BROOKLYN, NEW YORK, *by Permission*—for the Governor has plenary power—has been reported to be a nuisance by the State Board of Health a dozen times, and almost as often succeeding Governors have issued proclamatory orders to abate it: remains unabated. The latest action of this kind was in February last, in anticipation of summer vapors, as follows:

ALBANY, N. Y., February 15.—The State Board of Health today transmitted to Governor Black the report of Dr. Daniel Lewis, president of the State Board of Health, and Dr. A. H. Doty, the special committee appointed at the request of the executive to investigate the nuisance alleged to exist in Newtown Creek, L. I. The report of the committee has been adopted by the board. The report was as follows:

Your committee, after making a personal inspection of the Newtown Creek neighborhood between 10 and 12 o'clock at night, accompanied by a representative of the Citizens' Organization, upon whose complaint the Governor's order was issued, appointed a public hearing at the Court House, corner of Ewen and Powers Streets, in the city of Brooklyn, November 5, 1896. Many residents of the district were summoned to give testimony. Health Commissioner Emery of Brooklyn, and the counsel for his department, assisted in the investigation.

It was agreed by the complainants that the inquiry should be

confined to two establishments, the Acme Fertilizer Company and the J. C. Moller Company, both of which are located on Furmen's Island, near the north shore of the creek in Queens County.

A careful review of the testimony convinced your committee that at times a nuisance detrimental to the health and comfort of the residents of a large area was caused by these two factories. The fact was also established at the hearings by the evidence submitted that there was an absence of offensive odors in the daytime, but that during the night they were frequently extremely noxious and widely diffused, clearly showing that these factories were not properly conducted during the night, this being the result of either defective apparatus or disregard of proper precautions, or both.

In order to establish the exact cause of these noxious odors, your committee requested the board to authorize the employment of Ernest F. Lederle, an expert sanitary inspector of offensive trades, to examine the factories complained of at various hours of day and night, and to report to your committee the conditions as he found them. Mr. Lederle soon reported that during the winter months no nuisance existed there, and advised that his final report be deferred until after the hot weather. This was agreed to, and on August 17, 1897, an exhaustive report of his investigations was received and transmitted to you.

The report of Mr. Lederle, although stating that at the time of his various visits he found no nuisance actually existing, he declares that in his opinion, unless certain improvements are made at once, a nuisance is liable to be caused at any time. In conclusion Mr. Lederle speaks of other conditions existing in and along Newtown Creek as follows:

I would state that during my inspections I have had occasion to observe three sources of nuisances, which may, at times, affect the localities from which complaints have been made to your board and the origin of which might erroneously be attributed to manufacturing establishments.

1. The disgraceful condition of Newtown Creek at the Grand Street bridge, the outlet of a large sewer. At low water, when the sewer outlet is exposed, the odor is disgusting,

2. The burning of refuse at dumps located at various places along Maspeth Avenue, where the low ground is being filled in with house refuse. These fires often smoulder for days.

3. In the block bounded by Driggs Avenue, Havermeyer Street, North Ninth and North Eleventh Streets, oyster and clam

shells are burned in the kilns. This burning appears to be carried on principally at night, and on several occasions I have been able to distinguish this odor at a considerable distance.

These conclusions are embodied in the report of your committee because in its judgment they have an important bearing upon the sanitary condition of the neighborhood. Your committee finds the following conclusions based upon the testimony taken at the public hearing and upon the report of Mr. Ernest F. Lederle:

1. A nuisance of an intermittent character is caused by the Acme Fertilizer Company and the J. C. Moller Company, situated on Furman's Island, near the north shore of Newtown Creek, in Queens County.

2. The Acme Fertilizer Company should be ordered to repair at once all imperfections in pipes and leaks in concentrating pans and other apparatus; that the company should be ordered to discontinue the use of clay for repairing leaks, etc., and to make all connections steam and gas tight, and also to lay pipe for discharging the water from the condensers, the outlet of which shall be in the creek below low water mark.

The company should also be required to prevent, by suitable appliances, any possibility of the escape of offensive vapors from the air inlet on the roof, instead of into the furnace. The tar-like products which are consumed by the furnace should be injected very slowly and only when the fire is clear and very hot.

3. Moller & Co. should be ordered to place the exit of the drain below the low water point in the creek.

They should also be required to discontinue repair of pipes, joints and appliances by the use of clay, the same to be made gas and steam tight. The floor where bones are dumped and the conveyor should be thoroughly cleaned and disinfected after each day's work is done, and every possible care exercised in the burning of tar in the furnaces.

The committee begs leave to suggest these general considerations based upon Mr. Lederle's opinion as heretofore referred to:

First—That the Grand Street sewer outlet, which has been condemned by previous State Boards of Health, should be improved by the city authorities. The burning of refuse and oyster shells should be prevented by the local health authorities, which could be accomplished by a letter from the secretary of the State Board of Health to the health authorities of the city of Brooklyn.

MINERALINE.

The war revenue bill passed by the Senate contains a provision requiring every barrel of *"adulterated"* or *"mixed flour,"* to be labeled as such, together with the true weight of the package, the names of the ingredients contained therein, the name of the manufacturer or packer, and the place where manufactured or packed. Apart from its quality of being a revenue raiser, the provision is of the greatest value in the fact that it gives to the public some protection against an adulterated article of food, which the most stringent State laws, prohibiting the manufacture and sale of adulterated food, do not always provide. Senator Mason, who devised the provision, in urging its passage, read the following circular from a North Carolina firm addressed to a firm of Pennsylvania millers in which the attention of the latter is called to a certain substance called "Mineraline":

The New York Manufacturing Company, paints and wood fillers,
112-114 Fayetteville Street.

Greensboro, N. C., May 7.—Gentlemen—We invite your attention to our mineraline, which is without a doubt the greatest existing discovery.

There is no flour mill man who can afford not to use it, for several reasons:

Your flour will be much whiter and nicer. It does not injure the flour in any way, is not at all injurious to the health, and by using mineraline you realize a margin of from $400 to $1,000 on each car load you use.

To secure a low freight rate, we mark it as "ship stuff." We can furnish you mineraline free on board cars, at your station, for high grade flour at $20 per ton, for medium grade flour at $16 per ton, for bread meal at $12 per ton, and for feed meal at $8 per ton.

For a high grade flour use 15 per cent. mineraline, for medium grade flour use 12 per cent. mineraline, for bread meal use 12 per cent. mineraline, and for feed meal use 18 per cent. mineraline. We furnish all our ucustomers with a mixer free of charge. This machine will distribute completely any proportion desired, and costs nothing to attach. All you have to do is to bore a hole in your elevator pipe, clamp on the machine, attach a cord to run it, fill up the hopper and set the feed to the proportion desired.

Enclosed find sample of our mineraline for medium grade flour. You cannot afford to let your competitor beat you in both quality and margin. We would be glad to hear from you. Very truly yours,

THE YORK MANUFACTURING COMPANY,
By M. K. H.

Messrs. Fisher & Miller, Huntingdon, Pa.

The analysis of this sample was placed before the Senate, and forms a part of the records before the Ways and Means Committee of the House. The analysis shows that Mineraline is a ground clay, 95 per cent. of which is not even soluble in acid. The tax measure will also run up against other adulterants such as barytes flour, or ground rock, which adds to the whiteness as well as the weight of flour with which it is mixed. A more common adulteration than either of these is known as corn flour, with the glutin and sugar extracted and bleached with sulphuric acid. We are certainly fearfully and wonderfully made.

TUBERCULOUS FISH.—Tuberculosis has been found in the carp of a pond in France into which the sputa of a woman far gone in consumption were thrown. This is not mere hearsay, but is duly reported in the transactions of the French Academies des Sciences by Dubar, Bataillon and Terre. The fish were well. The pond was inoculated with the sputa. The fish became tuberculous. After two or three decades of this kind of proof the physicians in this city and elsewhere who are increasing the death rate by refusing to report consumption cases will learn something. They were nearly as long in learning the relation between typhoid and drinking water.

CHANGING GRADE OF CHICAGO SEWERS.—Without waiting for the completion of her great drainage canal, Chicago proposes to stop the discharge of her sewers into Lake Michigan, which supplies her with drinking water. Two new sewers are to be constructed, emptying into the Illinois and Michigan Canal, and slight changes will be made in some of the existing sewers to adapt them to this new plan.

A rather curious feature of the work in hand is an alteration in the grade of a section, 104 feet long, of an old sewer so that its

contents will flow westward instead of eastward. The inclination is very slight, and the required modification will therefore be trifling. A flooring of concrete will be laid on the bottom of the great six-foot conduit. It will be nearly eighteen inches thick at what is now the lowest end, and less than six inches thick at the other. This difference will be sufficient to give a slope in the opposite direction. The flooring will not be flat, but curved, so as to form a furrow of less width than the original sewer.

CHILDREN'S APPETITES.—To promote children's appetites there is no better plan than to give them plenty of outdoor exercise, fun and frolic; make them regular in their habits, and diet only upon plain, nourishing food, and they will seldom, if ever, complain of a lack of appetite. Never, however, keep them overtasked in school, or confine them closely to the house after school hours and frown down any attempt at play. If children are fed upon rich or highly-seasoned foods, nuts, etc., or are allowed to eat between meals, it is hopeless to expect them to have an appetite for their proper meals. Don't allow them to study too much, and especially keep them from reading the "penny dreadful." Sickness is the most expensive nuisance in the world, and although there may be cases when it makes people or children better, it generally makes them selfish, sad, and misanthropical, mean, and miserable. The best way to make children happy and good is to keep them well.—"Indian Lancet."

HOW PEOPLE SLEEP.—In England the old four-poster bedstead is still the pride of the nation, but the iron or brass bedstead is beating it out of the field. The English beds are the largest beds of the world. A peculiarity of the German is its shortness; besides that, it consists frequently in part of a large down pillow or upper mattress which spreads over the person and usually answers the purpose of all the other ordinary bed clothing combined. In the tropics men sleep in hammocks or upon mats or grass. The East Indian unrolls his light, portable charpoy or mattress, which in the morning is again rolled together and carried away by him. The Japanese lie upon matting, with a stiff, uncomfortable wooden neck rest. The Chinese use low bedsteads, often elaborately carved, and supporting only mats or coverlids. The ancient Greeks and Romans had their beds supported on frames, but not

flat like ours. The Egyptians had a couch of a peculiar shape, more like an old-fashioned easy chair, with hollow back and seat. —"Indiana Lancet."

CHRISTIAN SCIENCE.—"What's the matter, Johnnie; you seem to be feeling good?" asked one of his father's neighbors.

"Great! We got Christian Science over t' our house," said the boy, as he munched one doughnut and waved a second in the air.

"Christian Science? What do you mean?" inquired the puzzled neighbor.

"It's just immense!" cried the boy. "Best thing that ever happened. It's just the boss, I tell you!"

"I have heard that it sometimes did wonders," observed the neighbor, "but I didn't suppose boys knew much about it. Has it benefited you, Johnnie?"

"Benefited me!" echoed Johnnie. "You just bet it has! It's great! When you've Christian Science, you know, you ain't never sick. Benefited me? I should say it had. I kin slosh around in the snow all day now and eat fourteen doughnuts and ma never says a word, fer I *can't* be sick—see? I just *can't* be sick!"—"Harper's Bazar."

FLY SPECULATIONS.—The fly is an enormously reproductive creature, and, if a fair chance is given to it, can supply any demand in a very short time. Practically all flies are bred in stables. The eggs do best in horse-droppings. They are easily killed by chloride of lime or kerosene; and as the new flies make for water as soon as hatched, a dish of poisoned water in a stable is effective in reducing their numbers. The way to keep a stable clear of flies is to spray all fresh manure with kerosene. The most hopeful token of the abatement of flies in cities, however, is to be found in the substitution of electricity for horses, but that is still so far off that there is every prospect that the fly question will still be actively discussed long after the Cuban question is settled.—Bureau of Entomology, Washington.

WOULD-BE PHYSICIANS.—At the recent meeting of the Louisiana State Medical Society the State Board of Medical Examiners reported that at their meeting, May 2 and 3, 1897, there appeared for examination seventy-two physicians and eleven mid-

wives. Of the seventy-two physicians, four were colored. Eight of the physicians and one widwife failed. One physician, a negro, was caught booking, his paper was taken from him and his name dropped from the list.

Our collection of rich and unique answers still continues to accumulate for your special delectation.

1. From what source is man infected with trichinosis?

Answer—This is due to horses, usually by inhalation. You would avoid their inhalation by precaution.

2. What are the incompatibles of iodide of potassium?

Answer—Iodides is composed of seaweeds and saltz.

3. How is milk predigested?

Answer—Milk is predigested in the stomach.

4. What is dysuria? And give treatment.

Answer—It is an incomplete oxidation due to improper function of liver. Treatment: Cholagogue to increase biliary secretion, ipecac, phosphate of soda.

5. What is sialagogue? Give example.

Answer—It is a saline cathartic that produces a watery discharge from the bowels, and it may stimulate the liver slightly. Example, sulphate of magnesia.

6. What is cervical hyperplasia? Give treatment.

Answer—If cervical hyperplasia means the lump of extravasated blood which sometimes arises under the scalp of newborn children from pressure during delivery, then it is best to do nothing, as the blood extravasated will be absorbed in a week or two, and lump will completely disappear without showing bad effects by extravasated blood being reabsorbed through the capillary veins into general blood current.

A case is now pending before the Supreme Court of the State challenging the power of the board to exclude incompetents from practice. The board promises that if the Court decides the test case in its favor no time will be lost in prosecuting all violators of the medical law.

It would be difficult to present stronger evidence of the needful enforcement of the law than the above.

GOOD REASON.—An Irishman being asked why he wore his stockings wrong side out, replied, "Because there's a hole on the ither side ov 'em."

MORTALITY AND MORBILITY REPORTS AND REVIEWS.

Correspondents under this head are particularly requested to be as prompt as possible.

ALABAMA.—W. H. Sanders, M. D., State Health Officer, Montgomery.

CALIFORNIA.—C. A. Ruggles, M. D., President, Stockton; W. P. Matthews, M. D., Secretary, Sacramento.

San Francisco, 360,000. A. P. O'Brien, M. D., Health Officer. Report for April: Deaths, 591—109 under five years. From zymotic diseases, 40; diphtheria, 20; typhoid fever, 2; cerebro-spinal fever, 2; phthisis, 109; bronchitis, 21; pneumonia, 80. Annual death rate, 18.12.

Los Angeles, 103,000. Q. M. Powers, M. D., Health Officer. Report for April: Deaths, 158. From phthisis, 26; acute pulmonary diseases, 10. Annual death rate, 18.4.

COLORADO.—A. Stedman, M. D., President, Denver; Henry Sewell, M. D., Secretary, Denver.

Denver, 167,000. William P. Munn, M. D., Health Commissioner. Report for April: Total number of deaths, 184. Annual death rate, 13.15. The principal causes of death were: Phthisis (contracted elsewhere), 38; tuberculosis of all kinds, 46; diphtheria, 9; pneumonia, 22; heart diseases, 16; and nephritis, 9. There were 36 cases of diphtheria, as compared with 23 in March; 10 cases of scarlet fever, as compared with 20 in March; and 3 cases of measles, as compared with 13 in March.

CONNECTICUT.—Professor William H. Brewer, Ph. D., New Haven, President; Prof. C. S. Lindsley, M. D., Secretary, New Haven. The Secretary's bulletin for May reports the number of deaths, 1,138—59 less than in April, 29 more than in May of last year, and 19 more than the average number of deaths in May for the five years preceding the present. The death rate was 15.0 for the large towns; for the small towns, 16.5; and for the whole State, 15.4. The deaths from zymotic diseases were 132, being 11.6 per cent. of the total mortality.

The annual meeting of the county, city and town health officers of New Haven and Fairfield counties was held at Bridgeport, June 1. There was a good attendance, representatives being pres-

ent from New Haven, Branford, Cheshire, East Haven, Milford, Naugatuck, Norwich, Prospect, Wallingford, Waterbury, Woodbridge, Wolcott, Bethel, Brookfield, Danbury, Darien, Norwalk, Stamford, Trumbull, Weston, Westport, Bridgeport and other towns. Prof. Brewer, president of the State Board of Health, said that while the State Board has little to do directly with local sanitation, it is impossible for a number of health officers engaged in the same vocation to meet without their getting information which is valuable to them. You get a certain amount of momentum in conversation with others who have to meet the same difficulties as yourselves. The town is not only a municipal unit, but it is in the town that public sentiment is formed and most of the sanitary work is entire local work. It is one's neighbors' nuisances that we have to deal with, and it is the authority living right there, acquainted with the community and the conditions, that is best qualified to deal with it.

He spoke of the need of public sentiment being brought to a point where it would demand sanitation and sanitary measures to cover it. He said: "The health officers believe that they make the community more healthy, that less deaths ensue, that epidemics have been prevented, but you cannot point to this or that one who would be dead but for your services. Therefore you must keep your records, and prove to the people that less deaths are occurring in your towns than formerly. All of you know that laws cannot be administered which are considered useless or injurious. You can point out the most glaring dangers to public health and the need of improvement, but it should be made public so that you have the confidence of the community in which it works. There must be continually going on this work of education. There are many modern ways in which contagious disease is kept and spread and communicated, and as there has been such an increase in the comforts of life that a great many people are restive under the very conditions which will help to keep down the disease." He told of how a health officer might not wish to enforce the law strictly upon his fellow townsmen, and how a way had been provided, namely, the county health officers, they receiving the reports and looking after the delinquents. He praised the work of the county health officers and stated that they played a very important part in the health of a county. At the close of his address Prof. Brewer was loudly applauded.

Dr. C. A. Lindsley, Secretary of the State Board of Health was

then introduced by Chairman Hill. Dr. Lindsley spoke briefly upon the subject of the meetings and the county health officer system. He stated that he thought the meetings were the most successful thing that had been brought forward as an aid in the successful administration of healthful hygiene throughout the State. He also stated that no other State in the Union had a system like our county health officer system, and that he thought it was far superior to anything that has yet been advocated. He introduced for discussion the following topics: "What is the duty of a health officer in a case of contagious disease?" "What should the health officer do in a case of contagion where the physician does not report it?" "At what time is scarlet fever most contagious?" "Should a rule be adopted as to a uniform quarantine?" and "Formaldehyde as a disinfectant."

The discussion of these subjects elicited information of much practical utility in the health service and of interest to people generally who would intelligently appreciate needful measures for the protection of the public health.

DISTRICT OF COLUMBIA, 276,963—88,176 colored. Wm. C. Woodward, M. D., Health Officer, reports the mortality for four weeks ending May 28, 396. Death rates, 14.7 for the white, 25.7 for the colored, and 18.8 for the whole population. Deaths from zymotic diseases, 39; diphtheria, 7; consumption, 52.

GEORGIA —Savannah Board of Health: Mayor, Peter W. Meldrim, Chairman; Wm. Duncan, M. D., W. B. Stillwell, P. J. O'Connor, W. W. Owens, M. D., T. S. Wylly, Jr., J. C. LeHardy, M. D., Health Officer and Secretary.

Maritime quarantine at this port went into effect May 5. Vessels arriving go through the various processes of sanitation.

By the rules vessels, together with their crews, passengers, baggage and cargoes, subject to inspection and sanitation, are those arriving from suspected ports; those arriving from ports known to be infected, without sickness on board at the time of arrival, or having had any sickness during the voyage; those which, without regard to port of departure, are infected— that is to say, vessels that have yellow fever, cholera, smallpox or other contagious or infectious diseases on board at time of arrival, or have had during the voyage. All other vessels not specified, are subject to in-

spection and sanitation, if necessary, but are not to be detained longer than necessary to place them in good sanitary condition. The other vessels are detained three days after their ballast is discharged and they are disinfected.

ILLINOIS.—L. Adelsberger, M. D., President, Waterloo; J. A. Egan, M. D., Secretary, Springfield.

Chicago, 1,619,226. A. R. Reynolds, M. D., Commissioner, reports: Total deaths from all causes during the month of April, 1898, 2,133; monthly death rate per 1,000 of population (white, 1.31; colored, 1.80), 1.32; annual death rate, twelve months ended April 30, 1898, per 1,000 of mean population (white, 13.89; colored, 21.58), 13.99.

Deaths from diphtheria, 30; typhoid fever, 94; influenza, 27; consumption, 272; other tubercular diseases, 41; pneumonia, 359; bronchitis, 131. Contagious diseases reported during the month: Diphtheria, 131; scarlet fever, 60.

INDIANA.—H. Jamerson, M. D., President, Indianapolis; J. N. Hurty, M. D., Ph. D., Secretary, Indianapolis.

Bulletin for the quarter ending March 31, 1898: Deaths reported, 4,144—96 more than for the same quarter last year, and 185 more than for the preceding quarter. Two counties failed to report. Martin County reports were destroyed by water at the County Health Office. Whitley County failed to report owing to a change of health officers. There were fifty more deaths reported this quarter from influenza than last quarter.

There were 3,026 cases of contagious diseases reported during the quarter. They are given with the deaths therefrom, as follows:

Diphtheria, 318 cases, 259 deaths; scarlet fever, 465 cases, 25 deaths; typhoid fever, 217 cases, 119 deaths; measles, 2,026 cases, 18 deaths; phthisis, 520 deaths.

Richmond, 21,545. T. Henry Davis, M. D., Health Officer. The health officer reports for the year ending April 30, 1898: Deaths from preventable disease were less than for several preceding years. The total number of deaths for the year was 237—53 under five. Death rate, about 11 in each 1,000 of population. Deaths from special causes: Typhoid fever, 8; pulmonary consumption, 24. For several years 1 death in 8 occurred from consumption; the past year, about 1 in 9.

During the year Richmond has been favored, in that the few cases of diphtheria reported were of a mild type; no death occurred from this disease. The fact of diphtheria being under such control in Richmond is due to several reasons, among which may be mentioned the entire co-operation among physicians of the city; without exception, all are prompt to detect and report disease, and isolation is ordered in suspicious cases. The Superintendent of Public Instruction, aided by teachers, is awake to danger from contagion, and pupils indisposed are excluded from the school-room. No child can return without a certificate from attending physician, indorsed by health officer, that danger from infection is over. The former practice of collecting and distributing pencils has been abandoned and a better system adopted. The movement to prevent children from drinking from a common cup and bucket is being inaugurated. Library books from infected houses are not returned until disinfected by the Health Department, and many are cremated. Milk and bread tickets from infected houses are taken up and a verbal order for the amount due given.. The pasteboard ticket, after being handled where contagious disease is present, has been thought a fruitful source of communicating disease. Every effort is being made by citizens and those in authority to prevent the invasion of homes by preventable disease, and the result, as shown above, demonstrates the value of combined effort in this direction. Formaldehyde gas is now used for the purpose of disinfection. Results for two years last past have been very satisfactory.

Iowa.—J. I. Gibson, V. S., President, Denison; J. F. Kennedy, M. D., Secretary, Des Moines.

State Board bulletin for May: Diseases reported in April:

Diphtheria—Burrell township, Decatur County; Herndon, Corning, Cedar Falls, Lacona, Dexter, Britt, Cresco; Cleona township, Scott County; Aurelia.

Scarlet Fever—Grant township, Sioux County; Pleasant Grove township, Floyd County; Grant township, Cerro Gordo County; Dyersville.

Measles—York township, Iowa County; Independence township, Appanoose County; Webster township, Hamilton County; Richland township, Warren County; Sioux Rapids; Kalona.

LOUISIANA.—Edmond Souchon, President, New Orleans; G. F. Patton, M. D., Secretary, New Orleans.

New Orleans, 275,000—80,000 colored. (Picayune, May 31.): That the water supply of this city is not satisfactory is acknowledged by the friends and defenders of the Water Works Company. This is a fact that is not disputed by anybody who is not blind or blindly prejudiced.

The defect in the water supply is that the amount furnished is utterly unequal to the legitimate demands made upon it, while the quality is as bad as it well can be. That the water is unfit for any domestic use in its present state is self-evident, and it cannot be used for any purpose of human consumption until it is purified by some means adopted by each person or family that accepts it from the company's pipes. It has to be deprived of the mud and various sorts of filth that are suspended in it. A great deal of this objectionable matter can be got rid of by letting the water settle. The mud and sand and other impurities soon subside to the bottom, and when the water is drawn off it is in tolerable condition, and if it is to be filtered, is in a proper state for that.

The people of New Orleans have become suddenly alive to the deleterious effects upon their city of such an insufficient and objectionable water service. They realize that they might have had ten thousand or twenty thousand United States troops and volunteers camped here for several months but for the unfortunate condition as to water.

The Association met at Opelousas May 25th and elected officers for the ensuing years as follows:

President, Dr. Felix Formento, of New Orleans; vice-presidents, first congressional district, Dr. John N. Thomas, Port Eads; second congressional district, Dr. Rudolph Matas, Orleans; third congressional district, Dr. A. J. Perkins, Lake Charles; fourth congressional district, Dr. Thurnhill, Arcadia; fifth congressional district, Judge A. A. Gunby, Monroe; sixth congressional district, Dr. Dalrymple, Baton Rouge; treasurer, Dr. W. R. Lastrapes, Opelousas; secretary, Dr. Fred J. Mayer, Opelousas.

The committee on the Atlanta quarantine regulations reported as follows:

"Your committee on the Atlanta quarantine regulations beg leave to report favorably on the general principles governing said restrictions, and to indorse and commend the rules and regu-

lations governing freight and passenger traffic, and to express the hope that should the State be confronted with the appearance of yellow fever this year the carrying out of these regulations by the sanitary authorities will not be interfered with, so that rational scientific measures imposing the minimum of hardship on the commerce of the State be substituted for the barbarous shotgun methods which afford at best an insecure protection.

"Your committee particularly approves the plan of having medical inspectors attached to those consulates where yellow fever and cholera are epidemic, with a view of securing for our protection definite information as to the exact sanitary condition and the presence or absence of contagious diseases in such consular districts; and that Congress be urged to make the necessary appropriation to carry the plan into effect.

"Resolved, That this Association is of the opinion that it is a duty devolving on all nations to take measures to eradicate any plague centre from their territory, and that the existence of such centres is a menace to all the nations, and that our State Department be requested to take measures, through proper diplomatic channels, for the conveyance of this opinion to the governments deemed obnoxious to the opinion herein expressed."

The committee also expressed regrets that the Atlanta conference failed to adopt a uniform system of maritime quarantine.

A spirited debate followed, Mr. J. R. Norman, President of the St. Landry Cotton Oil Mill, opposing the endorsement of the Atlanta restrictions. He charged that it was a railroad scheme pure and simple, the product of the brains of city corporation physicians and railroad men; that the railroad companies had distributed on their own account the pamphlets containing the proceedings of the Atlanta conference. He warned the Association to be careful how it indorsed the regulations of the Atlanta conference. He said that he had endeavored to obtain a copy of the pamphlet being distributed, but that his efforts in that direction had failed.

Dr. Mayer defended the resolutions and the Atlanta restrictions, making a strong plea for the rational scientific quarantine as against shotgun quarantine.

The resolutions were carried.

Dr. Mayer offered the following resolution, which was unanimously adopted:

"Whereas, nearly every epidemic of yellow fever, which has ruined our commerce and ravaged our shores, has had its origin in that colony of convalescents, Havana:

"Resolved, That our representatives in Congress be requested to lay before the proper Federal authorities the necessity of stamping out the yellow fever there, to the end that when the war now existing between Spain and the United States is ended, and the articles of peace are drawn up, it shall be nominated in the bond that: 'The sanitary regulations of Havana shall immediately commence under the surveillance of American sanitarians and engineers.'"

Resolutions of respect to the memory of Dr. W. D. White, a member of the Association, who lately died at Abbeville, were adopted.

The Association then adjourned, and the meeting resolved itself into a session of popular hygiene.

Dr. Metz lectured for over two hours on "Water." He had brought with him all the chemical appliances necessary to demonstrate and illustrate his theories, and his lecture was doubtless the feature of the entire session. He held his audience well—so well that when he finished they asked for more.

Resolutions thanking the eminent gentlemen who had contributed so much toward making the meetings a success were passed; also thanking those who furnished the musical part of the programme.

The meeting of the Louisiana State Sanitary Association and School of Popular Hygiene then adjourned.

MARYLAND.—John Morris, M. D., President, Baltimore; John S. Fulton, M. D., Secretary, Baltimore.

Baltimore, 506,398—73,344 colored.—G. Hampson Jones, M.D., Health Commissioner, reports for April: Total deaths, 809, a decrease of 190 compared with the corresponding month of April, 1897. Of these 611 were whites and 198 colored; a death rate of 17.00 per thousand for the former and 31.06 per thousand for the latter. The death rate per thousand for the whole population was 19.02. 64 died from infectious diseases, 88 from consumption, 81 from pneumonia, 15 from bronchitis, 8 from influenza, 23 from Bright's disease, 6 from nephritis, 25 from apoplexy, and 7 from typhoid fever. 262 or 32.38 per cent. of the total deaths were in children under five years of age. Cases of infectious diseases reported, 469, a decrease of 75 compared with the preceding

month. Eighty-three deaths occurred in public institutions, of which 42 were reported as non-residents.

MASSACHUSETTS.—H. P. Walcot, M.D., Chairman, Cambridge; S. W. Abbott, M. D., Secretary, Boston.

Boston, 528,912. Samuel H. Durgin, M. D., Chairman of Board of Health.

During the month of April there were 930 deaths, of which 253 were under five years of age. Annual death rate, 21.09 per 1,000. Deaths from diphtheria, 20; scarlatina, 3; typhoid fever, 8; cerebro-spinal meningitis, 17; consumption, 119. Cases of diphtheria reported, 148; measles, 185; scarlatina, 89; typhoid fever, 25.

Lowell (Boston Herald), May 21, 1898.—Up to noon 40 cases of scarlet fever had been reported in Lowell this week, together with one death.

Most of these cases come from one source. About three weeks ago a mill man employed by Oliver J. Coburn, of Dracut, while suffering from an illness, now known to be scarlet fever, continued to milk the cows on the farm. The milk was distributed to some of the best families in Lowell.

In due time the disease broke out all along the route where the milk was sold, and most of the 40 cases are traceable to this source. In all probability a good many more will be developed.

MICHIGAN.—Hon. Frank Wells, President, Lansing; Henry B. Baker, M. D., Secretary, Lansing.

The Secretary reports for the month of May, 1898: Compared with the preceding month, measles, inflammation of kidney and pneumonia decreased in area of prevalence. Compared with the average for May in the 12 years, 1886-1897, pleuritis increased, and scarlet fever, consumption, remittent fever, whooping-cough, measles, erysipelas, inflammation of kidney, intermittent fever and diarrhœa were less prevalent. (The decrease in scarlet fever has existed since April, 1896.) Including reports by regular observers and others, consumption was reported present in Michigan in the month of May, 1898, at 164 places, measles at 119 places, scarlet fever at 51 places, typhoid fever at 40 places, diphtheria at 34 places, and whooping-cough at 33 places.

Reports from all sources show consumption reported at 17 places more, measles at 2 places more, scarlet fever at 1 place more, typhoid fever at 3 places more, diphtheria at 9 places less,

and whooping-cough at 14 places more in the month of May, 1898, than in the preceding month.

C. L. Wilbur, M. D., Registrar of Vital Statistics, reports the total number of deaths registered during the month of May, 2,459—230 less than for the preceding month, and a reduction in the death rate from 14.3 to 12.6 per 1,000 of estimated population. There were 414 deaths of infants under one year of age, and 170 deaths of children aged from one to four years. No serious epidemics prevailed. Consumption caused 222 deaths; typhoid fever, 25; diphtheria and croup, 29; scarlet fever, 5; measles, 19; whooping-cough, 22; pneumonia, 292; diarrhœal diseases of children, 45; cerebro-spinal meningitis, 46; influenza, 65. Only about half as many cases in which influenza was a principal or contributory cause of death were reported in May, as compared with April, and pneumonia also showed a marked decline.

MINNESOTA.—Franklin Staples, M. D., President, Winona; H. M. Bracken, M. D., Secretary, St. Paul.

Minneapolis, 225,600. . . . . M. D., Commissioner of Health; Miss Edwina J. Peck, Registrar of Vital Statistics. Report for May: Deaths, 164—52 under five years of age. From zymotic diseases, 17; typhoid fever, 1; measles, 6; phthisis pulmonalis, 23; pneumonia, 20. Annual death rate, 8.72. Cases of contagious diseases reported during the month: Diphtheria, 20; scarlet fever, 5; measles, 142; typhoid fever, 15.

MISSOURI.—E. L. Standlee, M. D., President, St. Louis; Paul Paquin, M. D., Secretary, St. Louis.

St. Louis, 623,000—36,000 colored. M. C. Starkloff, M. D., Commissioner of Health, reports for April: The annual death rate per 1,000 during the month was 15.38, this being based on a population of 623,000, computed on census figures of 1890 (460,000), at the rate of four per cent. annual increase. During the month there were 799 deaths. Thirty-five certificates were issued for deaths occurring outside the city limits; these were not included in the monthly statement. Percentage of deaths in eleemosynary and other institutions of a public character to total mortality, 25.2. Percentage of deaths in city institutions to total mortality, 15.50. White population, 587,000; mortality rate per thousand, 14.52. Colored population, 36,000; mortality rate per thousand, 27.72.

Kansas City, 200,000. A. N. Shirk, Health Officer, reports for April: 222 deaths, of which 69 were under five years of age. Consumption caused 4 deaths; tuberculosis, 17; pneumonia, 34; bronchitis, 7.

NEW JERSEY.—C. F. Brackett, M. D., President, Princeton; Henry Mitchell, M. D., Secretary, Asbury Park.

The mortality in the State for the year ending June 30, 1897, was 29,822 in an estimated population of 1,764,194. Deaths under five years of age numbered 10,614. Death rate, 15.24 per 1,000. There were 3,237 deaths from consumption, 3,450 from diarrhoeal diseases of children, 1,382 from diphtheria, 478 from typhoid fever, 321 from whooping cough, 203 from scarlatina, 156 from measles.

Newark, 235,000. Health Officer Chandler reports for the four weeks ending May 28: Deaths, 289—87 under five years of age; from diphtheria, 11; consumption, 38; pneumonia, 26. Annual death rate, 16.03.

Paterson, 110,692. J. L. Leal, M. D., Health Officer, reports for April: Deaths, 126—40 under five years of age. Annual death rate, 11.39. Deaths from diphtheria, 4; consumption, 22; pneumonia, 16.

NEW YORK.—Daniel Lewis, M. D., President, New York; B. T. Smelzer, M. D., Secretary, Albany.

The Secretary's bulletin for April reports a daily average mortality of 333 during the month, which is identical with that of March, against 344 in April last year, during which month 10,325 deaths occurred, and a death rate of 19.00 against one of 18.15 this month. The variations in mortality are evenly distributed throughout the State. From zymotic diseases the number of deaths is somewhat less this month, 9.4 per cent. of the total mortality, against 9.5 last month and 9.6 last April. Cerebro-spinal meningitis caused 82 deaths, which is above the average; the central parts of the State show comparative freedom from it; the limited outbreak of it in Cohoes has suspended. Scarlet fever has the same mortality for the three months, and has caused very few deaths outside the maritime district, although its mild prevalence more generally is noted. Measles is more generally distributed and has a reported mortality of 126 against 144 in March and 99 last April. Whooping-cough increases and is prevalent in all parts of the State, causing 118 deaths, or 30 more than in

either of the other months. Diphtheria has further decreased, to 252 deaths, or 100 less than in April, 1897; 2.5 per cent. of the total mortality was due to it, against 3.5 last April, and in some parts of the State less than one per cent. of the deaths was due to it; it usually decreases in April. The infant mortality was the same in all the three months, 28.0 per cent. of deaths occurring under the age of five years. Consumption caused 11.0 per cent. of deaths from all causes; in the Southern Tier district 7.5 per cent. and in the maritime 11.7 per cent., these having as usual the lowest and highest mortalities from it. From acute respiratory diseases there was the same mortality in each of the three months, about 18.75 per cent. of the total mortality, and much the largest of any group of diseases. Other local diseases have lower mortalities than in last month, but not less than last April. Grippe was estimated to have caused 600 deaths in March and 500 last April; it continues to be reported and probably exaggerated the mortality of this month about 500. There are no special epidemics reported from any part of the State. The weather in parts of the State was unusually cold and damp, but the average for the State shows the normal number of clear days, 10; a rain-fall but slightly in excess, humidity 67 per cent., an average mean barometer of 30.00, and temperature 42.7, the normal being 44 degrees for the entire month. Northwesterly winds prevailed generally of moderate velocity.

New York City, 3,438,899. Michael C. Murphy, President; W. T. Jenkins, M. D., and J. B. Cosby, M. D., Commissioners of Health; Emmons Clark, Secretary; Charles F. Roberts, M. D., Sanitary Superintendent; Roger S. Tracy, M. D., Registrar of Records.

Borough of Manhattan, 1,911,755. Frederic H. Dillingham, M. D., Assistant Sanitary Superintendent; Thomas C. Taylor, M. D., Assistant Registrar of Records. Deaths, 2,978—1,122 under five years; death rate, 18.75; deaths from zymotic diseases per 1,000 deaths from all causes, 105.50; from typhoid fever, 8; scarlet fever, 50; diphtheria, 83; acute respiratory diseases, 584; consumption, 339.

Borough of Bronx, 137,075. Eugene Monogan, M. D., Assistant Sanitary Superintendent; Arthur J. O'Leary, M. D., Assistant Registrar of Records. Deaths, 332—119 under five years; death rate, 29.00; from zymotic diseases per 1,000 from all causes, 172.25.

Borough of Brooklyn, 1,197,100. Robert A. Black, M. D., Assistant Sanitary Superintendent; Sylvester J. Byrne, M. D., Assistant Registrar of Records. Deaths, 1,665—557 under five years; death rate, 16.75; deaths from zymotic diseases per 1,000 from all causes, 115.50; typhoid fever, 11; diphtheria, 68; acute respiratory diseases, 319; consumption, 183.

Brooklyn's Water Supply is again in a most disgraceful condition. The taste, smell and color is very much as if a connection had been made with Newtown Creek to supply the "insufficiency." In reviewing the rotten condition of affairs in Brooklyn under the administration of Schieren and Wurster, Mayor Van Wyck is reported to have recently said: "If we had driven everybody to the penitentiary over there who ought to go, there would be very few left. I have read," continued the Mayor, "of all the gigantic frauds perpetrated in this country, but all of them pale by the side of those in Brooklyn. Why, they absolutely polluted the water and took the chance of poisoning thousands in order to further their ends. They polluted drinking water to create an emergency so they could make a few thousands of dollars. Every one of the men guilty of this dastardly work ought to be made to do time, and if any way is found by which they can be sent on their way to the penitentiary, I will gladly help to send them."

But there are others. *Stable nuisances* still obtain without any apparent effort by the Health Department to execute its ordinances. The ammoniacal odors of the filth-sodden basement stables and manure vaults commingle with the stenches of Newtown Creek and Gowanus Canal quite as freely and as pestiferously as they did under the administrations of Schieren and Wurster. The Health Department was quick to concentrate all of the laboratory work that had been undertaken in Brooklyn, to dispense with the disinfecting plant and other measures in the Borough of Brooklyn for the protection of the public health. But the only thing the new administration has done for the Borough of Brooklyn thus far is to curse the previous administration.

Borough of Queens, 128,042. Obed L. Lusk, M. D., Assistant Sanitary Superintendent; Frank Wickham, M. D., Assistant Registrar of Records. Deaths, 195—73 under five years; death rate, 14.10; deaths from zymotic diseases per 1,000 from all causes, 130.

Borough of Richmond, 64,927. Geo. C. Hubbard, M. D., Assistant Sanitary Superintendent; P. Walter Wood, M. D., As-

sistant Registrar of Records. Deaths, 76—19 under five years; death rate, 14.10; from zymotic diseases per 1,000 from all causes, 105.25.

Total: Deaths, 5,246—1,890 under five years of age; death rate, 19.35; deaths from zymotic diseases per 1,000 from all causes, 125.35; deaths from typhoid fever, 19; scarlet fever, 75; measles, 94; diphtheria, 178; acute respiratory diseases, 1,028; consumption, 629.

Buffalo, 360,000. Ernest Wende, M. D., Health Commissioner, reports for April: Deaths, 421—122 under five years; death rate, 13.36; from zymotic diseases per 1,000 from all causes, 85; diphtheria, 5; typhoid fever, 7; acute respiratory diseases, 85; consumption, 44.

Rochester, 175,000. George W. Goler, M. D., Health Officer. Report for April: Deaths, 216—44 under five years; death rate, 15.01; from zymotic diseases per 1,000 from all causes, 46.30; diphtheria, 3; acute respiratory diseases, 53; consumption, 22.

Albany, 100,000. Report for April: Deaths, 149—37 under five years; death rate, 17.88; from zymotic diseases per 1,000 from all causes, 60; typhoid fever, 4; diphtheria, 3; acute lung diseases, 32; consumption, 16.

Syracuse, 120,000. Report for April: Deaths, 145—31 under five years; death rate, 14.50; from zymotic diseases per 1,000 deaths from all causes, 110; acute lung diseases, 25; consumption, 12.

North Carolina.—George G. Thomas, M. D., President, Wilmington; Richard H. Lewis, M. D., Secretary, Raleigh.

The May Bulletin summarizes the mortality for April, from twenty-three towns, with an aggregate population of 128,260—55,821 colored. Aggregate deaths respectively, 129—48 white, 81 colored—representing annual death rates, 7.7; 15.6; 12.1. The causes of death were: Consumption, 28; pneumonia, 11; heart disease, 7; brain diseases, 9; typhoid fever, 2; diarrhœal diseases, 6. Deaths under five years of age, 39—24 colored. Still-born, 20—19 colored.

Ohio.—S. P. Wise, M. D., President, Millersburg; C. O. Probst, M. D., Secretary, Columbus.

State Board Bulletin for May reports cases of infectious diseases for four weeks ending April 20, from 59 places, aggregating a population of 1,373,713. Diphtheria and croup, 101—29 deaths;

scarlet fever, 87—2 deaths; typhoid fever, 94—17 deaths; whooping-cough, 150—2 deaths; measles, 1,519—13 deaths.

Cincinnati, 405,000. J. M. Winthrow, M. D., Health Officer, reports for April: 518 deaths—156 under five years of age. Annual death rate, 15.34. From consumption, 66; pneumonia, 70; bronchitis, 32; diphtheria, 5; typhoid fever, 4; whooping-cough, 18.

June 1.—Dr. W. A. R. Tenney has been appointed Health Officer to succeed Dr. Winthrow.

Cleveland, 370,000. J. L. Hess, M. D., Health Officer, reports for the month of April: Deaths, 443—179 under five years. From diphtheria, 7; typhoid fever, 5; phthisis and tuberculosis, 47; pneumonia, 61; bronchitis, 22; measles, 2. Death rate, 14.36.

PENNSYLVANIA.—Pemberton Dudley, M. D., President, Philadelphia; Benjamin Lee, M. D., Secretary, Philadelphia.

Philadelphia, 1,240,266. Benjamin Lee, M. D., Health Officer, reports for the three weeks ending May 21: Deaths, 1,258—383 under five years of age. From diphtheria, 59; typhoid fever, 16; consumption, 150; pneumonia, 169. Annual death rate, 17.5.

Pittsburg, 295,000. Report for the four weeks ending May 28: Deaths, 371—151 under five years of age; consumption, 23; pneumonia, 47. Death rate, 16.3.

YORK, May 16.—This city is undergoing a typhoid fever scourge much more serious than the one that existed in February and March. The boiling of water used for domestic purposes entirely stopped the spread of the disease then, and the opinion became general that danger no longer existed. As a result, all precautionary measures were relaxed and the city now has another epidemic on its hands. Over 100 cases of the fever have been officially reported to the Board of Health by physicians of the city, and as many more cases of suspicious illness exist in the city.

HAZLETON, June 14.—Diphtheria has broken out in such malignant form in this city that the Board of Health convened in extra session this afternoon to devise means for preventing the spread of the disease. Seventeen cases have developed in the eastern section of the city since June 7, and it is feared that still more children will be afflicted before the close of the week.

Reading, by filtering her sewers voluntarily and keeping all that is harmful out of the Schuylkill, has done a great service for general sanitation as well as for Philadelphia. It has set an example for other places and has demonstrated that it is entirely

practical for a city located on the banks of a water supply stream to refrain from polluting that water. All towns in the State situated on streams which are the source of municipal water supply should be compelled by law to do that which Reading has done of its own free will.

SOUTH CAROLINA.—Charleston, 65,165—white, 28,870; colored, 36,295. H. B. Horlbeck, M. D., Health Officer, reports for four weeks ending May 28: Deaths, 142—97 colored. Under five years of age, 51. Annual death rate—white, 20.26; colored, 54.74—28.43.

TENNESSEE.—W. J. McMurray, M. D., President, Nashville; J. A. Albright, M. D., Secretary, Somerville.

Memphis, 61,747—30,317 colored. Herbert Jones, M. D., President; Marcus Haas, M. D., Secretary. Report for April: Deaths, 115—62 colored. Annual death rates: White, 19.65; colored, 24.49—22.34. Deaths from phthisis, 17; pneumonia, 19.

WASHINGTON.—Seattle, 70,000. Clarence A. Smith, M. D., Health Officer and Secretary, reports for May: Deaths, 59. Annual death rate per 1,000, 10.10. Deaths from consumption, 4; pneumonia, 9; diphtheria, 4.

WISCONSIN.—Solon Marks, M. D., President, Milwaukee; U. O. B. Wingate, M. D., Secretary, Milwaukee.

Milwaukee, 275,000. Walter Kempster, M. D., Commissioner of Health, reports for April: Deaths, 273—103 under five years of age. Annual death rate per 1,000, 11.91. Deaths from diphtheria, 3; typhoid fever, 2; consumption, 27; other tubercular diseases, 5; pneumonia, 32; bronchitis, 28; other respiratory diseases, 1.

The mortality for the year ending April 17, 1898, from all causes was 3,606—1,502 under five years of age. Death rate per 1,000, 13.11. There were 708 cases of diphtheria, with 138 deaths; scarlatina, 89 cases, 3 deaths; typhoid fever, 109 cases, 31 deaths; deaths from consumption, 346; pneumonia, 239; bronchitis, 193; cholera infantum, 118.

MORTALITY STATISTICS ABROAD FOR THE FIRST QUARTER, 1898.

Population, total mortality, annual death rate per 1,000, and deaths from typhoid fever, diphtheria, acute lung diseases and consumption.

London, 4,504,766; 24,407; 22.0; 107; 557; 5,460; 2,257. Glasgow, 724,349; 4,096; 22.9; 39; 45; 931; —. Liverpool, 633,-

645; 3,716; 23.8; 25; 33; —; —. Manchester, 539,079; 2,854; 21.7; 33; 9; —; —. Birmingham, 510,343; 2,792; 22.3; 41; 39; —; —. Leeds, 416,618; 2,009; 19.3; 16; 38; —; —. Sheffield, 356,478; 1,764; 19.8; 22; 10; —; —. Dublin, 349,594; 2,828; 32.2; 75; 30; 616; 378. Edinburgh, 316,900; 1,493; 18.8; 3; 25; 298; 139. Belfast, 304,610; 2,105; 27.6; 124; 28; 614; 271. Nottingham, 295,628; 1,161; 19.7; 22; 5; —; —. Bristol, 236,137; 1,665; 28.1; 8; 17; —; —. Bradford, 233,737; 1,086; 18.6; 10; 3; —; —. Hull, 229,887; 1,082; 18.8; 10; 5; —; —. Newcastle, 233,021; 1,026; 18.4; 10; 11; —; —. Salford, 215,702; 1,114; 20.6; 17; 8; —; —. Leicester, 208,662; 924; 17.7; 5; 11; —; —. Portsmouth, 186,618; 835; 17.9; 4; 4; —; —. Cardiff, 177,770; 774; 17.4; 4; 52; —; —. Brighton, 122,310; 605; 19.8; 4; 2; —; —. Norwich, 111,669; 568; 20.4; 7; 1; —; —. Plymouth, 99,136; 530; 21.3; 2; 4; —; —. Amsterdam, 503,045; 2,011; 15.9; 20; 26; 364; 239. Rotterdam, 288,863; 1,457; 20.1; 11; 21; —; —. La Hague, 191,529; 825; 17.2; 5; 6; —; —. Paris, 2,511,629; 14,001; 21.0; 46; 88; 2,389; 2,578. Lyons, 466,028; 2,736; 20.8; 19; 12; 784; 315. Lille, 216,276; 1,355; 25.1; 5; 12; 272; 22. Saint-Etienne, 135,784; 874; 25.7; 5; 13; 203; 96. Nantes, 125,757; 702; 22.3; 5; 4; 101; 124. Roubaix, 124,447; 705; 22.6; 6; 7; 160; 98. Le Havre, 119,470; 822; 27.4; 6; 3; 132; 156. Rouen, 112,657; 891; 31.6; 3; 13; 150; 140. Reims, 107,709; 748; 27.7; 4; 9; 120; 100. Brussels, 531,024; 2,335; 17.6; 12; 20; 424; 288. Berlin, 4,728,201; 7,142; 16.4; 22; 179; 763; 1,051. Hambourg, 661,015; 2,579; 15.7; 7; 25; 344; 313. Munich, 430,000; 2,587; 24.1; —; 70; 358; 340. Leipzig, 422,097; 1,964; 18.5; 5; 55; 264; 261. Breslau, 392,795; 2,373; 24.2; 2; 25; 382; 343. Dresden, 377,500; 1,722; 18.2; 1; 38; 219; 248. Cologne, 340,000; 1,714; 20.0; 10; 52; 233; 199. Frankfort, 214,808; 943; 15.8; 2; 9; 147; 175. Hanover, 227,660; 896; 15.7; 4; 9; 146; 99. Madgeburg, 220,722; 1,079; 19.5; 1; 26; 164; 123. Dusseldorf, 192,518; 811; 16.9; 3; 20; 124; 105. Konigsberg, 178,821; 945; 21.1; 10; 16; 184; 102. Nuremberg, 172,941; 935; 21.6; 1; 7; 192; 209. Chemnitz, 172,417; 970; 11.2; 3; 39; 49; 118. Altona, 161,886; 630; 15.6; —; 7; 96; 86. Charlottenburg, 161,062; 561; 13.9; 2; 14; 72; 59. Stettin, 154,233; 808; 20.8; 4; 25; 90; 92. Stuttgart, 149,913; 615; 16.4; —; 18; 86; 74. Bremen, 147,339; 672; 18.2; 3; 3; 107; 91. Elberfeld, 146,281; 535; 14.6; 1; 15; 86; 69. Strasburg, 142,885; 846; 23.6; 1; 36; 181; 85. Aix-la-Chapelle, 131,364; 553; 16.8; 1; 11; 96; 61.

Danzig, 128,325; 743; 23.1; 3; 21; 100; 78. Halle, 123,755; 575; 18.6; 2; 23; 82; 43. Brunswick, 122,718; 572; 18.6; 1; 10; 106; 76. Crefeld, 108,211; 498; 18.4; 1; 20; 75; 51. Essen, 105,528; 515; 19.5; 1; 17; 128; 66. Mannheim, 104,182; 443; 17.0; 1; 8; 92; 73. Vienna, 1,574,129; 8,543; 21.3; 21; 183; 1,581; 1,556. Buda-Pesth, 648,104; 3,500; 20.3; 50; 47; 603; 638. Prague, 377,109; 1,837; 19.3; 26; 14; 203; 320. Triest, 164,491; 1,364; 29.5; 3; 32; 359; 172. Gratz, 122,350; 863; 32.4; —; —; —; —. Brunn, 102,509; 696; 27.1; 6; 5; 74; 164. Copenhagen, 340,500; 1,448; 16.9; 1; 30; 125; 236. Stockholm, 267,100; 1,279; 18.2; 13; 56; 306; 169. Gothembourg, 117,350; 492; 17.6; —; 6; 56; 88. Christiania, 192,141; 826; 17.2; 6; 7; 151; 166. St. Petersburg, 1,267,023; 8,052; 25.0; 421; 425; 325; 1,190. Moscow, 988,610; 6,683; 26.7; 117; 211; 202; 991. Varsovie, 601,408; 2,704; 17.8; 27; 45; 459; 351. Odessa, 383,000; 1,980; 20.6; 28; 36; —; 248. Bucharest, 206,000; 1,698; 32.9; 13; 32; 362; 248.

MICHIGAN STATE BOARD OF HEALTH.

QUARTER-CENTENNIAL, 1873-1898,
AND
ANNUAL MEETING OF THE CONFERENCE OF STATE BOARDS OF HEALTH OF NORTH AMERICA,
At Detroit, Mich., August 9-11, 1898.

OBJECTS OF THE MEETING.

At the Quarter-Centennial, effort will be made to place before citizens of Michigan accurate comparative statements of the conditions affecting the public health, and of the actual conditions of health in Michigan before and since the State Board of Health was established, especially exhibiting, if it be true, that there has been a very marked improvement of the healthfulness of Michigan in recent years; statements of the principal dangers to life and health at the present time; a discussion of measures for the further promotion of the public health in Michigan; and to place before those who may visit Michigan on that occasion the beauties of the numerous delightful summer resorts around the shores of the Great Lakes and at the numerous inland lakes and other sanitaria, the general healthfulness of the State and its unparalleled advantages as a summer-resort State.

The following is the programme, subject to such variations as it may later seem necessary:

Morning Session, August 9, at 9:30 A. M. (Local Time).
(Hon. Frank Wells, President Michigan State Board of Health, in the chair.)

		Time. Minutes.
1.	Prayer	5
2.	Music	5
3.	Opening address. By Hon. Frank Wells, President State Board of Health	10
4.	Welcoming Address. By Hon. William C. Maybury, Mayor of Detroit	10
5.	Welcoming Address. By the Governor of Michigan	10
6.	A Quarter Century of Sanitary Work. By A. N. Bell, M. D., Editor of the "Sanitarian," Brooklyn, N. Y.	30
7.	Public Health Work in Michigan. By A. R. Reynolds, M. D., Health Commissioner of Chicago.	30
8.	Sanitary Work Twenty-five Years Ago. By Prof. R. C. Kedzie, M. D., ex-President of the Michigan State Board of Health	20
	Afternoon Session at 2:00 P. M. (Local Time).	
1.	Music	5
2.	Educational work of the Michigan State Board of Health, including the Work of the State Laboratory of Hygiene. By Prof. C. A. Lindsley, M. D., Dean of Medical Faculty of Yale College, President of the American Public-Health Association	20
3.	Sanitary Conventions. By Benjamin Lee, M. D., President of National Conference of State Boards of Health	20
4.	Annual Conferences of Local Health Officers. By C. O. Probst, M. D., Secretary American Public-Health Association	20
5.	Music	5
6.	State Work for the Restriction and Prevention of Diseases. By John S. Fulton, M. D., Secretary Maryland State Board of Health	20
7.	Municipal Restriction of Diseases. By Ernest Wende, M. D., Health Commissioner of Buffalo	
8.	Sanitation of the Future. By Prof. Victor C. Vaughan, Director Michigan State Laboratory of Hygiene	20
	Evening Session, at 8:00 P. M. (Local Time).	
1.	Music	5
2.	Short addresses (5 minutes each). By ten eminent sanitarians, until 9:00 P. M.	50

3. Reception from 9:00 until 10:00 P. M. By members of Michigan Board and distinguished visitors.
4. Refreshments, to commence at 10:00 P. M., following which after-dinner speeches may be made.

This meeting is held for the benefit of every locality in the State, and it is hoped that many localities will be represented by delegates, thus securing the most direct benefits. Every local health official will probably learn much that will enable him to do better service in guarding the public health. Subjects of importance to every locality will be discussed by eminent men from various parts of the country, as will be seen by the programme.

Every local board is urgently solicited to send a delegate to this Quarter-Centennial.

The law requires that there shall be taught in Michigan schools physiology and hygiene. Act 146, Laws of 1895, requires that "there shall be taught in every year in every public school in Michigan the principal modes by which each of the dangerous communicable disease is spread, and the best methods for the restriction and prevention of such disease." The programmes for the Quarter-Centennial Celebration of the Establishment of this State Board of Health, and of the Conference of State and Provincial Boards of Health of North America, both deal with the most important subject in hygiene and sanitary science; and the papers and discussions on these most important subjects are to be the leaders in sanitary science and public-health work throughout this continent. Therefore, the meeting in Detroit August 9, 10 and 11, 1898, will be an extraordinary opportunity for Michigan teachers to hear such topics discussed by the leading sanitarians of North America. It is respectfully recommended that as many teachers as can do so attend this important sanitary meeting.

By direction of the State Board of Health.

HENRY B. BAKER, Secretary.

Lansing, Mich., April 1, 1898.

ANNOUNCEMENT BY THE INTERNATIONAL CONFERENCE.

Indianapolis, April 25, 1898.

The thirteenth Annual Meeting of the Conference of State and Provincial Boards of Health of North America will be held in Detroit, Michigan, August 9, 10 and 11, 1898.

The "Quarter-Centennial Celebration of the Establishment of the Michigan State Board of Health" will be in progress at the above named time. This will undoubtedly add greatly, in every way, to the success and profit of the Conference.

The usual Conference work will begin on the morning of August 10. Headquarters will be at the Cadillac hotel.

After the meeting it is expected that the sanitarians from outside of Michigan will be given free transportation to various summer resorts. Therefore it is hoped that all will come prepared to spend at least a week in Michigan.

The first day, August 9, will be given to meeting with the Michigan Quarter-Centennial Celebration, in effecting organization and hearing reports of committees.

The second day will be given to the subject proposed by Dr. Baker, of Michigan, as follows: "Each State and Provincial Board of Health has some principal line of work which reaches nearer perfection than does the work of any other Board along that particular line. I therefore suggest that the topic to be presented by all the Boards represented at the Conference be as follows: 'What are the Principal Lines of Work of your Board? How is Each Accomplished? What Modification, if any, Does the Experience in your State Suggest?' "

Every Board represented in the Conference is expected to present, through its delegate, written replies to the above questions so far as it can. These reports and discussions and reports of committees will consume the time of the morning, afternoon and evening sessions of August 10.

The third day, August 11, will be given to discussion of the Various Phases Relating to the Restriction and Prevention of Tuberculosis.

J. N. HURTY, M. D., Secretary.

Local Committee of Arrangemements in Detroit. Reduced Rates of Travel

In Detroit a Committee of Citizens are making arrangements for the Quarter-Centennial Celebration. The Reception Committee will probably arrange for a reception the first evening; the Entertainment Committee are planning an excursion to Belle Isle, St. Clair Flats, Detroit Water Works, etc.; the Printing Committee will provide souvenir programmes, leaflets, guide books and badges, and the Finance Committee will endeavor to raise $1,500 for the entertainment of the visitors. The Committee on Transportation has already secured one and one-third rates from all points in America, and will now give attention to side trips, as to Mackinac and other summer resorts and sanitaria, where it is expected that delegates from outside this State will be entertained.

BOOK REVIEWS.

EPIDEMIC CEREBRO-SPINAL MENINGITIS AND ITS RELATION TO OTHER FORMS OF MENINGITIS.—A report of the State Board of Health of Massachusetts, by Drs. W. T. Councilman, F. B. Mallory and J. H. Wright. From the Sears Pathological Laboratory and the Laboratories of the Boston City Hospital and the Massachusetts General Hospital. Pp. 188; illustrated. This is a most important step in the progress of preventive medicine. What the writers say of cerebro-spinal meningitis as a reason for the searching investigation they have made of it merits the attention of all boards of health and registrars of mortality and morbility statistics, State and local.

"The confusion of medical terms by physicians, together with the fact that all returns made to the State authorities are copies of certificates and not originals, and that these copies are in the majority of instances made by men who have little or no knowledge of the significance of medical terms, give to the information obtained in regard to this disease a great measure of uncertainty. This is particularly true of epidemic cerebro-spinal meningitis—a disease which is liable to be confounded with several other forms of brain disease, in consequence of the similarity in nomenclature of the terms employed to define such diseases. In addition to this, the disease is not a common one, and the clinical manifestations of it are liable to be confounded either with other cerebral diseases or with forms of diseases in which cerebral symptoms predominate." (Introductory, p. viii.)

It gives a historical sketch of the disease from the reports of its first recorded but imperfectly described appearance in Roettinggen in 1802 and Geneva in 1805, and its first appearance in this country—next after the experience in Geneva—at Medfield, Mass., in 1806, including the epidemic in Boston, in 1897. It hardly seems necessary to state, after giving the names of the authors of this report, that the investigation is characterized by thoroughness throughout; that fallacies have been eliminated and facts organized. Moreover, besides the historical sketch and analysis of reports and opinions of all that had been written on the subject hitherto, the authors have added a list of 111 cases clinically observed and investigated pathologically. The findings are

carefully tabulated and explained. Many new facts are brought out; for example, the division of neuroglio cells under the influence of a toxic agent, and details describing the habits and properties of the exciting organism of the disease. Diagrams elucidate the text wherever necessary in the description of the disease, and a map is added showing its prevalence in Boston last year. The bacteriological study and post-mortem appearances are admirably illustrated by colored plates.

CHEMICAL STUDIES: Drinking Water; Wool Scouring; Soil Humus; Analysis of Foods; Vinegars. By E. F. Ladd. Bulletin No. 32, Agricultural College, Fargo, N. D.

A brief but important summary of analytical results, with special reference to mineral matters and their danger in drinking water.—Loss of Shrinkage from Wool Scouring, 55-70 per cent. —Humus, in Relation to Organic Matter in the Soil; Humus and Plant Food; Humus and Soil Moisture; Humus and the Physical Conditions of the Soil; Humus and Soil Fertility; How Shall we Maintain the Humus in the Soil?—Analysis of Feeding Stuffs; Corn Silage; Hays—Vinegar. "There is no question but that much deception is being practised by certain houses in the sale of their vinegars and fancy prices received for a really inferior product."

EGBERT'S HYGIENE AND SANITATION.—A Manual of Hygiene and Sanitation. By Seneca Egbert, A. M., M. D., Professor of Hygiene in the Medico-Chirurgical College of Philadelphia. In one handsome 12mo. volume of 360 pages with 63 engravings. Cloth, $2.25 net. Lea Brothers & Co., Publishers, Philadelphia and New York.

An elementary work on preventive medicine, discussing the fundamental principles of hygiene as they are now generally understood, with special reference to those laws that are most closely connected with the practice of conscientious physicians, and the advantages resulting from the pursuit of sanitary methods based upon them. Following an introductory chapter of fifteen pages, thus explaining the purpose of the book, it opens with a lucid chapter on bacteriology and the germ theory of disease. The truth of this theory, based upon bacteriological knowledge, the author thinks, so simplifies the prevention of infectious diseases that effective sanitation is reduced to the destruction of the spe-

cific exciting cause, viz., disinfection. "Nor is it essential that we any longer make the distinction between the terms contagious, infectious, zymotic, and specific, that formerly obtained, but all may be practically used synonymously."—This rather ambiguous statement seems to imply that, inasmuch as all the diseases designated by these terms are germ diseases, they require the same and only method for their restriction, viz., disinfection. A proposition wholly inconsistent with practical knowledge of the different methods required for the restriction and prevention of personally contagious diseases, small-pox, for example, and for such as are infectious only, as typhoid fever and cholera, and malarial diseases. Disinfection is an important but very far from being the only means of combatting germ diseases. The twelve chapters that follow—on air, ventilation and heating, water, food, stimulants and beverages, personal hygiene, school hygiene, disinfection and quarantine, disposal of sewage, vital statistics, and the examination of air, water and food—into which the remainder of the work is divided, summarize the accepted knowledge on the several subjects of which they treat in a style well adapted to the needs of medical students as well as lay readers interested in personal or public questions regarding the conservation of health.

Enlightened public sentiment has led to the inclusion of hygiene in the curricula of nearly all medical colleges, and many academic institutions. Professor Egbert has framed his work in recognition of this requirement in the production of a text book well suited to the undergraduate course of medical students. The work is well illustrated, convenient in size, moderate in price, and gotten up in the excellent style common to the publishers.

INFECTIOUS DISEASES.—A MANUAL OF INFECTIOUS DISEASES by E. W. GOODALE, M. D., Lond., Medical Superintendent of the Eastern Hospital of the Metropolitan Asylum Board, formerly Medical Reporter to Guy's Hospital, and I. W. WASHBOURNE, M. D., Lond., Fellow of the Royal College of Physicians; Physician to the London Fever Hospital, Assistant Physician to Guy's Hospital, and Lecturer in the Medical School. 8vo, pp. 376; illustrated. Price, $3.00. Philadelphia: P. Blakiston, Son & Co.

"This book is designed chiefly for students," yet it is a manual of comprehensive scope, treats of the specific fevers generally and has special chapters on typhus fever, relapsing fever and anthrax. Epidemic influenza is treated of at considerable length,

describing its varying types involving dangerous complications. There are also special chapters on fever, its essential characteristics, *per se,* and the early discriminative symptoms indicative of acute inflammatory or specific fevers; contagion, and disinfection, and an account of the frequent mistakes made in diagnosis; a brief account of sore throat and of the rashes simulating those of the specific fevers.". Appended is a résumé of a report of the Medical Officers of the Metropolitan Asylum Board Hospital upon the regulations of the Metropolitan Asylum Board relating to the removal of patients suffering from infectious diseases, and a table showing the length of the quarantine period during which a susceptible person, who has been exposed to infection, is required to be isolated.—Altogether it is a manual of practical utility to medical practitioners and sanitary officials, as well as an excellent text book for students, admirably summing up the diagnostic features, treatment and restrictions applicable to infectious diseases.

PUBLIC WATER SUPPLIES—The Purification of Public Water Supplies. By JOHN W. HILL, Consulting Engineer, Member of American Society of Civil Engineers, American Water Works Association, American Public Health Association, 8vo, pp. 313; illustrated. Price, $3.00. New York: D. Van Nostrand & Co.

"This work is in continuation of a series of lectures and papers on the *Quality of Public Water Supplies* which the author has had the honor to read before several scientific societies and universities during the past five years, and is intended to present in a brief way (1) the facts and causes of pollution of sources of water supply; (2) the effect of this pollution on the typhoid fever rates of our larger cities; and (3) to illustrate by a few examples how the typhoid fever rates have been reduced by the introduction of water from purer natural sources and by filtration of polluted waters."—The author is a well recognized authority on the subject, but besides giving the results of his own with experiences in the erection of water supply and filtration works, he cites examples from extensive observation and description of the best foreign works. Moreover, there are special chapters on the typhoid bacillus and typhoid fever, and bacteria, collated from standard works on bacteriology, adding to the value of the work to sanitary officers. Altogether it is a work of practical utility to all hydraulic engineers and a valuable manual for health officers.

CONTEMPORARY LITERATURE.

PHYSICAL ENDURANCE.

It should be impressed upon all young persons that during life each member of the body, in the very act of living, produces poison to itself. When this poison accumulates faster than it can be eliminated, which always occurs unless the muscle has an interval of rest, then will come fatigue, which is only another expression for toxic infection. If the muscle is given an interval of rest, so that the cell can give off its waste product to keep pace with the new productions, the muscle will then liberate energy for a long time. This latter condition is what we call endurance.

The power and endurance of the human machine is limited according to our understanding of the above facts, and also our recognition of its slowness in getting started. Like any other ponderous and intricate machine, the body requires time to get in harmonious working order. The brain, nerves, heart, and skeletal muscles must be given some warning of the work they are expected collectively to perform. Ignorance of this fact has broken down many a young man who aspired to honors on the cinder path. The necessity of getting all the parts of the body slowly in working order is well understood by trainers and jockeys on the race track, as is evidenced by the preliminary "warming up" they give their horses, although it is doubtful if the trainers could give any physiologic reason for this custom.—From "The Physiology of Strength and Endurance," by W. L. Howard, in Appletons' "Popular Science Monthly" for June.

GLADSTONE AND TENNYSON.

On the subject of Mr. Gladstone's omniscience much has been written. I had the opportunity of conversing on the subject with two of his friends, the late Lord Tennyson and the late Cardinal Manning. On two or three ocasions I have heard Lord Tennyson declare that Mr. Gladstone acquired a reputation for universal knowledge, which, if not fictitious, was based on the reverence paid by those ignorant of a subject to one able to discourse freely upon it. For example, said Lord Tennyson: "Mr. Gladstone knows little about either china or horses. To a collector of china he appears to have the most remarkable knowledge of equine affairs. To china maniacs, however well versed in the history of

pottery of all ages, he seems to be a Homeric scholar past compare. Scholars, however, who had passed their lives in studying the Homeric Legend, and were steeped in Greek lore to their fingers' ends, profoundly believed that Mr. Gladstone's conversation on Palissy-ware or old Worcester, on Chinese Sang de Boeuf or on old Dresden, contained the last word to be said on those subjects.

During the whole of the home-rule controversy Lord Tennyson's language on the subject of Mr. Gladstone's foreign and domestic policy, which he deemed unpatriotic to the last degree, was marked by vigorous disapproval. In fact, I have seldom heard one great man speak of another with the directness and freedom used by the late Poet Laureate in reference to Mr. Gladstone. His last public utterance, however, more accurately represents his real feelings: "I love Mr. Gladstone, but I hate his policy."

After a separation of some years, Lord Tennyson and Mr. Gladstone were brought together at the house of a common friend. At first Lord Tennyson preserved a more or less gloomy silence, but as dinner progressed he succumbed to the witchery of conversation which has immeshed thousands of hearers in its mysterious power. In the course of the evening the two "old men eloquent" fraternized, recalled old times, and finally parted friends. On retiring to bed that night, Lord Tennyson said to his son, in a gruff voice, "I am sorry I have said all I have said against the fellow." "You will again, father," was the reply. —"Harper's Weekly."

THE AMERICAN MONTHLY REVIEW OF REVIEWS for June is a well-illustrated "war number." It opens with the editor's review of the first month's campaigning in our contest with Spain. This is followed by the detailed account of the struggle in the "Record of Current Events" and "Cartoon Comments" on the war, chiefly from foreign journals. The contributed articles include a character sketch of Admiral Dewey by Winston Churchill, two articles on the Philippines, and one on "Spain and the Caroline Islands" from a missionary point of view. The department of "Leading Articles of the Month" also deals with many questions growing out of the war. Altogether there are more than eighty pictures of subjects related to the present crisis.

In order to answer the thousand-and-one questions that people

are asking in these days about the Philippine Islands, the "Review of Reviews" for June contains two valuable illustrated articles, one giving the observations of a very recent American visitor to the islands, Mr. Joseph T. Mannix, and the other, by Mr. Charles Johnston, late of the Bengal Civil Service, on "The Philippines in History." The relatives and friends of the thousands of young American volunteers who will shortly be called to serve in that distant part of the world will be interested in what these writers have to tell about the islands and their inhabitants.

THE CENTURY for June has several features of particular timeliness. Captain Alfred T. Mahan, recently recalled to active service as special adviser to the Naval Strategy Board, contributes a paper describing the reasons for the failure of the Spanish Armada. This is introductory to a general article on the Armada, illustrated by Varian and written by William Frederic Tilton. Mr. Tilton's paper is chiefly based on the manuscript Irish correspondence in the London Record Office, and on the narratives of survivors and other authentic Spanish papers, gathered by Captain Duro, the historian of the Armada. Mr. Emory W. Fenn, who served as a major in the Cuban army, recounts his experience under General Garcia in an article entitled "Ten Months With the Cuban Insurgents." Mr. R. O. Crowley, formerly electrician of the Torpedo Division in the Confederate Navy, describes "The Confederate Torpedo Service," which he was largely instrumental in organizing. Mr. Crowley laid the mine which blew up the first gunboat ever destroyed by this means. Mr. Stephen Bonsal, formerly of the American Legation at Madrid, writes of "Toledo, the Imperial City of Spain," the illustrations being by Joseph Pennell. Accompanying a number of hitherto unpublished drawings by Vierge for Cervantes' masterpiece, William Dean Howells has an article on "Pictures for Don Quixote."

Every citizen, mindful of our welfare and national affairs, will read with especial interest two articles in the July number of "Harper's Magazine"—"The People and Their Government," by Henry Loomis Nelson, and "The Middle West's New Era," by Charles M. Harger. The observations of an American in Eastern Siberia are recounted in a copiously illustrated paper by Stephen Bonsal, and the opening article, also reminiscent of Eastern travel, is a story, "A Prince of Georgia," by Julian Ralph. The other attractive features of the number are "Notes

on Journalism," by G. W. Smalley; "New Worlds and Old," by Brander Matthews, and "The Ethics of a Corrida," a description of the national sport of Spain, by Lucia Purdy. In addition to Mr. Ralph's story, the fiction includes tales by William McLennan, Frederic Remington, Margaret Sutton Briscoe and George Hibbard. Further instalments appear of Mr. Merriman's brilliant serial, "Roden's Corner," and of Margaret Deland's "Old Chester Tales."

A stirring and timely Fourth-of-July tale by Edith Carruth, entitled "A Frontier Patriot," is the appropriate initial article in the July number of "Harper's Round Table;" the fiction of the number also includes several other excellent short stories and entertaining sketches, as well as additional chapters of the two fascinating serials, "The Copper Princess" and "The Adventurers," both enlivened with a succession of exciting and unexpected incidents. The various and valuable monthly departments continue to assist and interest the readers of the magazine.

"Spain's Political Future" forms the theme of a most important paper furnished by the Hon. Hannis Taylor, late United States Minister to Spain, to the "North American Review" for June. So long, Mr. Taylor asserts, as Conservatives and Liberals stand together and maintain social order under the existing constitution, Spain is safe from the horrors of civil war, and no student of politics who has carefully examined existing political conditions can believe that the time has come for her to depart from monarchial institutions.

Among the short articles in the June "North American Review" are: "The Pulpit and the War," by the Rev. Edgar G. Murphy; "Rehabilitated Upper Chambers," by Edward Porritt; "Our Export of Corn," by John M. Stahl; "The Sweating System," by the Rev. F. J. C. Moran, and "Strategical Value of the Philippines," by Truxtun Beale.

The Foreign View of the United States is sometimes exasperating, and always interesting. In an exceedingly readable Paris letter to "Harper's Bazar," published in the issue of June 11, Miss Katharine de Forest tells many entertaining anecdotes of conversations with French men and women on the subject of our war with Spain. Such social incidents are straws

which show the way the wind is blowing, and the talk of Parisian salons is strongly indicative of the attitude of France.

Another timely article in this issue of the "Bazar" is contained in the column by Thomas Wentworth Higginson. This eminent man of letters discusses our proposed "Imperial Policy," and his opinions are, as always, clean-cut and convincing. It is a striking commentary upon the important part played by the American woman in our national life that such articles as these should attract her thoughtful attention.

FAME KEPT ALIVE BY FLOWERS. —In the June "St. Nicholas" there is an article on "Flower-Names," written by Ella F. Mosby. The author says:

Some of the roses have French historic names, as the souvenir de Malmaison, and the splendid Jacqueminot, the soldier

> Who shared in Napoleon's glory,
> And dreamed that his sword had won him fame!
>
> Ah, the fate of a man is past discerning!
> Little did Jacqueminot suppose,
> At Austerlitz or at Moscow's burning,
> That his fame would rest in the heart of a rose!

What could be lovelier, indeed, than to have one's memory kept alive by a flower, as has been the fortune of the botanists Fuchs, Kalm, L'Obel, Dahl and Magnol, who would have been forgotten long ago but for the fuchsia and kalmia, the lobelia, dahlia and magnolia, of our gardens and forests!

PUBLICATIONS RECEIVED.

Practical Hygiene. Cuvier. E. B. Treat & Co., New York.

Yellow Fever. Touarts.

Typhoid Fever. H. E. Gill, M. D., Topeka, Kan.

Municipal Control of Milk Supply. W. H. Heath, M. D., Buffalo, N. Y.

Method of Overcoming High Resistance in Crookes' Tubes. Wm. W. Graves, M. D., St. Louis, Mo.

Preventing Yellow Fever and the Quarantining of Houses to Stamp It Out. Stamford E. Chaillé, M. D., New Orleans, La.

THE SANITARIAN.

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WEATHER FORECASTS AND HEALTH.*

BY PROF. N. JUSTIN RODDY, State Normal School, Millersville, Pa.

There are two great fields of human knowledge. In the one we seek truth for truth's sake, and all honor should be to him who enters this field, for man is slow to reward the discoverer of pure truth as he merits.

In the other sphere we are seeking to bring knowledge into relation with other knowledge—into relation with things. This constitutes the sphere of the application of knowledge to practical uses. It often results in inventions.

In no application of scientific method has more advance been made than in the treatment of disease, in sanitation or in the creation of healthful, hygienic conditions. By doing this almost every department of knowledge has been laid under contribution, new departments of investigation have been inaugurated and almost every condition of existence been investigated in the relation to health. In view of this, it is somewhat of a surprise to find that little has been done in the way of experimentally tracing the cause of the relation of local climatic conditions. We in America live under very inequable weather conditions, change following change in rapid succession. Moreover, our weather does not come in homeopathic doses, but when a blizzard, a warm wave or a cyclonic disturbance strikes us, no allopath could wish a more generous portion. It is desirable that we should know the relation, if any exists, between this weather and our health.

I do not feel at all competent to deal with the health side of this question. I only desire to point out certain fundamental laws of

* Read at the meeting of the Associated Health Authorities, recently held at Lancaster, Pa.

weather changes and briefly indicate a few evident relations imperfectly understood. I cannot be considered either as an iconoclast or a constructionist, as there are no theories to demolish nor any reliable data with which to build.

Weather seems fickle, but it is subject to rigid laws. The fundamental elements of weather changes are high and low pressure areas, produced mainly by heat and cold. Another is moisture, in the form of vapor, distributed through the atmosphere in ever varying quantities relatively.

There are great varieties of topographical features making up the land surface of the earth and many kinds and colors of soils. When these receive the sun's radiant energy they are heated to different degrees, and hence the area most heated becomes by the uplift of air over it and the consequent outflow at the top a place of low pressure, while surrounding regions receiving the outflow of air above become areas of high pressure. High pressure areas may result from excessive cooling and consequent inflow of air. Since the air whirls in or out, low pressure areas are cyclonic and highs are anti-cyclonic.

Humidity conditions may enter as a factor in making the highs and lows more equable.

It follows, therefore, that in summer, as a result of the great excess of heat on the land masses over that on the sea, low pressure areas predominate on the continents and high on the ocean. The reverse is true in winter.

The relation these highs and lows bear to our health condition is one of those uninvestigated questions. But we may suggest certain theoretical problems. Every low in consequence of the expanded condition of the air may contain much vapor, and therefore be deficient in the essential to life—oxygen. Lows in consequence are depressing, and we would infer that care should be exercised as to skin conditions, in diet and against overexertion. The blood is necessarily not fully oxygenated and the digestive functions are in consequence not so vigorously performed; nervous energy is lacking; the tone of the body must be low. This is theoretical, and I grant it, and yet the records show the greatest number of suicides occur under just these conditions of low pressure and high humidity. But whether this be a coincident or sequent relation we need to investigate.

With the barometer high and the humidity low, there is greater abundance of oxygen; skin and lungs act vigorously, oxidation is

rapid, and as a consequence the body demands more food and we feel buoyant, nervous energy is in excess. Might not we under these conditions overtask some weak organ and suffer in consequence?

Every area of low pressure is an area of precipitation and an area toward which the wind blows from all directions. Every area of high pressure is one from which the winds blow in all directions and is calm and clear.

It is also a law of weather that in one zone the prevailing winds are westerlies. These push all weather areas toward the east across our country. If a low pressure area starts in the west it crosses our continent, bringing with it some form of precipitation, storms and higher temperature, than usual. This low will be followed by a more or less developed high, bringing reverse weather conditions.

It would seem to follow from these laws of weather that we can prepare ourselves by proper clothing, proper food, prudent diet, to withstand these changes and therefore keep ourselves in perfect health conditions. As it is we do not sagaciously regulate ourselves as the waves of so-called "grippe" following in the wake of certain classes of storm indicate.

The greatest, and perhaps, taken all in all, the most sudden fluctuations of weather are experienced in some of the New England States, and especially is this true in the changes in temperature and humidity. Corresponding with these sudden changes it is said by good authorities there are more pulmonary affections here than elsewhere in the United States.

Whether this is a direct resultant of the weather conditions we do not as yet know, but it proves the necessity for thorough investigation.

Not only do we experience the alternations of pressures and humidities, but also of alterations of winds when an area of high or low pressure passes us. Suppose a low pressure area to be west of us, we will then experience east winds until the area of low pressure reaches us, when the winds will have reached their greatest velocity from the east and precipitation in some form has attained its maximum. When the low pressure area, which we may call a storm centre, passes us, going eastward, the wind is reversed, blowing with great velocity and bringing clear and cool or cold weather. Since the winds do not blow straight away from the storm centres, they are termed cyclones or anti-cyclones. In

winter they invariably result in blizzards, that cross the United States in about two days, and often bring with them a fall in temperature amounting in many cases to 40 or 50 degrees, and in the northers of Texas to 60 degrees. Over our continent in summer storms of the same character sweep, bringing in their wake westerly winds, dry, hot, dust-filled warm air, called hot waves, with rises of temperature of as much as 20 degrees. Now each of these changes is predicted by the Weather Bureau and announced at least twenty-four hours in advance of the storm.

It of course follows that these sudden changes in temperature, winds and humidity will affect us if we do not prepare for them. And, since many of the diseases the "flesh is heir to" have their inception in common "colds," and since "a cold" is a mechanical condition of the pores of the skin, in which the pores are simply closed by sudden chilling, thus throwing greater work on the other excretory organs, some attention must be paid to clothing and food, and perhaps mental condition. We need greater attention to weather changes, a better appreciation of the laws, and subsequently a greater knowledge of the relation of weather changes to bodily conditions.

In a series of experiments recently made by the Smithsonian Institution, one result was that there is no correspondence between our bodily sensations and the actual temperature. It often followed that when the temperature was quite low the body did not feel correspondingly cold, and vice versa. It was found, however, that there is a fairly constant relation between bodily sensations and humidity. With high humidity we suffer more from cold than where the air is dry. The reason is, bodily functions are performed slowly where the air is full of moisture because of the lack of oxygen and the partial failure of the skin to perform both its execretory and absorbent functions. The body soon clogs, heat is not generated, and colds may easily result.

Magnetic storms move somewhat like cyclonic disturbances, sweeping the continent from west to east. These affect us in some mysterious way. Cyclonic disturbances, which usually develop electrical conditions of the atmosphere, produce similar effects, but with less intensity.

We all desire the greatest personal comfort which tends to longevity, and therefore highest mental efficiency. We secure this by careful attention to bodily sensations. Finding these last are deceptive, should we not regulate our lives more satisfactorily, more

by the thermometric and barometric readings furnished to us daily by the Weather Bureau?

The daily isotherms and isobars furnish us the conditions from which we may judge of the weather, and to these our own observation and reasoning must furnish the requisite supplements to furnish local forecasts.

THE CLIMATES OF CUBA AND MANILA.*

By W. F. R. Phillips, in charge of Section of Climatology, U. S. Department of Agriculture. Prepared Under the Direction of the Chief of Weather Bureau, Washington, D. C.

There appears to be very little precise and accurate information obtainable regarding the climate of Cuba.

At only one station have systematic meterological observations been made and published for any considerable time, and that is the observatory of Belen College, Habana. Observations were begun at Belen College in 1859 and have been continued to the present. The daily meterological observations made at Belen College have been published with more or less regularity in annual volumes. With one or two exceptions, and then only for relatively short periods, no compilation of the monthly averages has been published.

Apart from the observations of Belen College and the brief records already named, only fragmentary meteorological data for other parts of the island have been found. Temperature observations made in 1796-99 at Ubajay, a village about 15 miles southwest of Habana;' two years' observations between 1832 and 1835 at Matanzas; eighteen months' observations in 1839 and 1840 at a place in the interior about 150 miles eastward of Habana, the San Fernando mines; and fragmentary observations at Santiago de Cuba and Trinidad de Cuba comprise all the data to be found.

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* Abstract of "Climate of Cuba. Also a note on the Weather of Manila.

A good deal of meteorological data, especially of rainfall, is, however, to be had for adjacent and neighboring islands, and which by judicious use may be made to be of considerable service in forming an intelligent idea of the climate, or climates, of Cuba. With this purpose in view, temperature and rainfall data have been compiled from the following places, viz.: To the north, Key West, Fla., and Nassau, Bahamas; to the east, Port au Prince, Haiti, San Juan, Puerto Rico, and St. Thomas; and to the south, Kingston and other stations in Jamaica. To the west there are no islands, and the nearest meteorological station is at Merida, Yucatan. Also for general information and because of some climatic relevancy that may exist, meteorological statistics from the islands of Martinique, St. Vincent, Barbados, and Trinidad have been compiled and introduced.

With the exception of the northern part of the Bahamas, the large group of islands collectively known as the West Indies lies within the north tropical zone, being situated in the greater part between the Tropic of Cancer and the tenth parallel of north latitude, and between the sixtieth and eighty-fifth meridians of west longitude. The total number of islands comprising the West Indies is somewhat more than 1,000, and the total land area is, in round numbers, about 95,000 square miles. Cuba, Haiti, Jamaica, and Puerto Rico, which comprise little more than three-fourths of the total area of the West Indies, are virtually included between the parallels of 17° and 23° north latitude. The greater part of the land area lies at a considerable elevation above sea level; more than 15,500 square miles lie at an altitude of 1,500, or more, feet above the sea. The Bahamas are the lowest and rise but little above the sea, the highest hill being only 230 feet.

The area of Cuba and its dependent islands is about 43,000 square miles. Its extreme length, measured along a curved line following its centre, is 730 miles, and its average breadth about 80 miles. The physical aspect of the interior of Cuba, according to Humboldt, "is gently undulating and like that of England, not more than 280 to 380 feet above the level of the sea. The village of Ubajay, about 15 miles distant from Habana, in a southwesterly direction, is 242 feet above the sea."

The highest part of the island is the range of mountains known as the Sierra Maestra, bordering the southeast coast from Cape Cruz to Cape Maysi. The highest mountain peaks are the Pico

de Tarquino, 7,670 feet, the highest point in the island; Gran Pedra, 5,200 feet; Junque and Ojo del Toro, 3,000 feet. From this range there extends very nearly through the centre of the island a general ridge of very much less elevation, though in the extreme western part it rises, in the Pan de Guajaibon, to an elevation of 2,530 feet. This ridge divides the island into two general watersheds, from which its rivers flow in northerly and southerly directions, respectively.

THE CLIMATE of the West Indies presents, with respect to both temperature and rainfall, considerable variations from the generally conceived idea of tropical uniformity. These variations are largely, if not entirely, caused by differences in altitude and position with respect to the prevailing winds of the zone.

Meteorologically considered, the West Indies lie between the sea level isotherms of about 77° and 80°, and have an average annual rainfall of about 60 inches, the greater part of which falls from May to October. The average humidity of the atmosphere is approximately about 75 per cent. of the amount required for saturation at the average annual temperature. The prevailing winds are from the east and north of east, the "northeast trades," and blow with great regularity and uniformity.

Temperature.

The average annual temperature of Habana, as determined from the observations at Belen College, made during the decennium 1888-1897, may be stated in round numbers as 77° F. In this decennium the highest annual temperature was 77.2°, and this occurred upon three occasions; and the lowest annual temperature was 76.1°, and happened upon only one occasion, showing in the ten years an extreme range in annual averages of but 1.1° F. It would, therefore, seem probable that the mean temperature for the decennial period 1888-1897 is about a true average for Habana for any long period. The warmest month at Habana is July, with an average temperature of 82.4° F. The warmest July in this decennium had an average temperature of 83.5° F., and the coolest July a temperature of 81.7° F. The warmest single month in the decennial period was August, 1888, when the average temperature was 84.2° F. The coldest months is January, with an average temperature of 70.3° F., and the warmest and coldest Januaries in this decennium were, respectively, 73.4° F. and 67.5° F. The highest temperature recorded was

100.6° F., in July, 1891, and the lowest, 49.6° F., in February, 1896.

For Matanzas, on the coast about 50 miles east of Habana, there is a record for two years, beginning in August, 1832, and ending in July, 1833, and again beginning in January, 1835, and ending with December of the same year. From this record the mean annual temperature at Matanzas appears to be about 78°. The highest temperature is recorded as 93°, and the lowest as 51°.

At Santiago, on the extreme southeast coast, the temperature is apparently higher than on the northern and western coasts, and from the meager data available appears to be about 80°, with an average difference between the warmest and coldest months of about 6° F. A very short fragment of a record of temperature has been found for Trinidad de Cuba, about midway on the southern coast, giving the average temperature from December, 1851, to March, 1852, for the hours of 7 a. m., 2 p. m., and 7 p. m., as 72.8°, 78.7°, and 75.3° F., respectively, and the observer remarks that during that period the highest temperature recorded was 84°, and the lowest 64.5° F., and the greatest range in any twenty-four hours was 9.5°, which occurred upon the day having the highest temperature.

For the interior of the island only two temperature records have been found, namely, for Ubajay, and the mines of San Fernando. Ubajay is, or was at the time, a village about 15 miles southwest of Habana, and about 242 feet above sea level. Its average temperature from four years' observations was 73.6° F. The record is quoted by Baron Humboldt and was made during 1796-1799. The place given as San Fernando mines is about 150 miles eastward of Habana, and is 554 feet above sea level. The temperature record is for the year 1839, and shows an average of 75°. From these records the average annual temperature of the interior of the island would appear to be considerably lower than on the coast.

The shortness of the records at Ubajay, Matanzas, and San Fernando mines, and the additional fact of the chronological differences in the several series of observations above quoted, preclude any direct comparison between the temperatures at the different places.

The temperature given for Habana for the years 1800, 1801, 1806, 1807, 77°, and 1810-12, 78.3°, are upon the authority of Humboldt and Ramon de la Sagra. Those for Habana for 1888-97, 76.8°, are from the records af Belen College.

Humboldt states that changes in temperature occur very suddenly in Habana, and gives an instance of the fall of the thermometer in the shade in the space of three hours from 89° to 74°, a very considerable fall for the tropics certainly, and one that occurring on a summer's day even in the temperate latitude would impress itself quite noticeably.

The maximum temperature is reached between noon and 2 o'clock in the afternoon, and the minimum between dawn and sunrise. The average diurnal range of temperature is about 10°.

Atmospheric Moisture.

The relative humidity of the atmosphere appears to be fairly constant, as far as can be determined from the observations available. It averages about 75 per cent. of saturation. The mean relative humidity of the different months differ hardly enough to characterize one month as being drier or damper than another.

From observations made at Habana at different hours of the day it appears that the diurnal range of the relative humidity is considerable, varying from the maximum of about 88 per cent. in the morning to a minimum of about 64 per cent. at noon.

The absolute humidity is very great. At Habana the average is about 7.5 grains of vapor to the cubic foot of air, and at Kingston, Jamaica, it is about 8.0 grains to the cubic foot. At Habana the absolute humidity varies from 6.2 grains per cubic foot in January to 8.9 grains in September, and at Jamaica from 7.1 grains in January to 8.8 grains in September.

Rainfall.

The rainfall shows to a greater degree than the temperature the influence of locality and season of the year. The average rainfall for Habana is about 52 inches for the year, and for Kingston, Jamaica, about 32 inches, while the average for the whole of Jamaica appears to be from about 65 to 67 inches. The greatest rainfall is reported, however, from the island of Martinique, and varies from 133 inches at Fort de France to 93 inches at St. Pierre. The rainfall is, as a rule, greater on north and east coasts than on south and west coasts.

The fall of rain is greatest during the months of May to October. On an average the greatest rainfall occurs in October, and the next greatest in June. During the months of July and August there appears quite a noticeable falling off in the amount of aqueous precipitation in comparison with the months of June and October.

The description of the rainfall of Cuba virtually resolves itself, so far as present information goes, into that of the rainfall at Habana.

Observations have probably been taken continuously at Belen College Observatory since 1859, but the records on file in the Library of the Weather Bureau show a hiatus from 1876 to 1884, inclusive. In the combined periods, 1859-75 and 1885-97, the greatest annual rainfall was 71.40 inches in 1867, and the smallest fall was 40.59 inches in 1861. The average rainfall for the thirty years was 51.73 inches.

Rainy Season.—The season of heavy rainfall for the West Indies in general begin with May and ends with October, as has already been stated.

The rainy season at Habana begins in the latter part of May and the first of June and ends with October. Relatively the greater bulk of the rain falls during the months from June to October. The average rainfall for this period is 32.37 inches, or 63 per cent. of the annual fall.

The number of days on which rain falls is, upon the whole, considerable, about one day out of three at Habana and almost two days out of every three at Fort de France. The general character of the rainfall appears to be heavy downpours of short duration, and this is particularly the case during the summer months, or as the time is more generally known in the West Indies, "the rainy season."

Notwithstanding the frequency of rain during the summer months they do not present the greatest number of cloudy days. The rains, "although copious, are of short duration, and those days on which showers do fall are, in general, perfectly cloudless. It may almost be said that during these months no clouds are to be seen in the atmosphere, except while the showers are falling, while in other months cloudy days sometimes occur without rain."

Wind.

The prevailing winds of this region are the "northeast trades." Except when influenced by the passage of cyclonic and anticyclonic areas the wind blows steadily from points between east and north. During the passage of storms and areas of high barometric pressure, however, the winds may blow from any direction, being governed in this regard by the location of the centre of cyclonic or anticyclonic activity. In the winter season, cold waves in the United States, when extending far to the south-

ward, cause cold, northerly winds, or "northers," along the north Cuban coast.

The average velocity of the wind at Habana is about 7.5 miles an hour. The velocity, however, varies considerably with the season, being highest in winter, when its average velocity is 8.5 miles an hour, and lowest in summer, when its velocity is 6.5 miles an hour. The velocity is also higher on northern coasts than on southern coasts, as is shown by comparison of the anemometer records of Habana and Kingston. The diurnal variation in the velocity of the wind is much more pronounced than the seasonal variation. The following table shows the average velocity of the wind at certain hours of the day at Habana, Cuba, and Kingston, Jamaica:

	Miles an Hour.	
Hour.	Habana.	Kingston.
4 a. m.	4.3	2.0
6 a. m.	4.5	2.0
8 a. m.	6.5	2.1
10 a. m.	9.2	4.3
Noon.	10.7	6.9
2 p. m.	11.4	7.6
4 p. m.	10.7	6.6
6 p. m.	8.7	4.5
8 p. m.	6.9	2.7
10 p. m.	5.6	9.1

In climates having such high temperatures and humidities as shown for the West Indies, the velocity of the wind and its constancy are of the greatest importance to both comfort and health.

But little can be said of the clouds. Maxwell Hall states that:

"During the winter months there is much detached stratus; during the summer months there is much cumulus, which keeps the afternoons cool, especially as the cumuli soon degenerate into strato-cirrus, and then disappear, leaving the nights perfectly clear. When rain begins to fall from a large cumulus a quantity of cloud is poured into the air from the top of the cumulus as smoke from a factory chimney. This takes place in all parts of the world when rain falls from cumulus, but in the temperate zones only a little *false cirrus,* or cirri-form is thrown off. In Jamaica the process is on a gigantic scale, and the cloud is spread out as a sheet, far and wide, so as to shade the land for an hour

or two from the direct rays of the afternoon sun. It is, therefore, a common cloud in Jamaica. Its texture at first is thick and woolly, but as it spreads the sheet becomes thinner * * * and it finally disappears a little after sunset, leaving the evening sky perfectly clear.

Thunderstorms, with much electrical display, are of frequent or almost daily occurrence; but little damage results from them. The West Indies are more or less subject during each summer to one or more severe tropical storms or hurricanes. These storms are more likely to occur in the months of August, September and October.

WEATHER OF MANILA.

Manila, the capital and chief port of the Philippine Islands, is situated in latitude 14° 35′ north, and in longitude 121° east of Greenwich.

Meteorological observations have been made for many years at the Observatorie Meteorologico de Manila. Observations of rainfall for thirty-two consecutive years, and of the other meteorological elements for seventeen consecutive years have been published by the observatory. The appended table, compiled by Prof. H. A. Hazen, of the Weather Bureau, gives in a concise form the more important meteorological elements of the climate.

Temperature.—The average temperature of the year is 80° F. The months of April, May and June are the hottest part of the year. May, with an average temperature of 84° F., is the hottest of the three. December and January are the coolest months, each with an average temperature of 77° F. The highest thermometer reading recorded is 100° F.; this was observed in May. The lowest reading recorded is 74°, and was observed in January.

Humidity.—The average relative humidity is 78 per cent. That of the most humid month, which is September, is 85 per cent., and that of the least humid month, which is April, is 70 per cent. The average absolute humidity is 8.75 grains in a cubic foot. It is greatest in August and least in February.

Rainfall.—The average annual rainfall is 75.43 inches, of which 43.69 inches, more than 57 per cent., fall during the months of July, August and September, and 50.74 inches, more than 80 per cent., fall from June to October, inclusive. September has the largest average fall, 15.01 inches, and February the smallest average fall, 0.47 inches. The heaviest rainfall in any one month was

61.43 inches, in September, and sometimes no rain at all has fallen in February, March, April and May.

Departures from the average rainfall are in some instances remarkable. For example, as much as 120.98 inches have fallen in one year, and as little as 35.65 inches in another. Still more remarkable was the fall of 61.43 inches in one September, and that of only 2.00 inches in another September.

SANITARY SCIENCE AND INDECENCY.

By A. L. Benedict, M. D., Buffalo, N. Y.

Much of the work of the medical profession, and especially of that part which is engaged in sanitary duty, depends on the susceptibility of tissues to the mechanical and chemical effect of bacteria. Most of the latter have been bred in animal bodies and require such lodgment in order to maintain their virulence. Indeed, in no department of biology is the variation of characteristics by evolution more plainly shown than in the case of pathogenic vegetable micro-organisms. Omitting such conspicuously contagious diseases as the exanthemata, typhoid fever is the disease par excellence in which the series of sick man, excreta, ingesta, sick man, is most plainly demonstrated as subject to indefinite repetition. Theoretically, it should be possible to break this chain in the middle and practical experience has shown that this may be done. In one city in which typhoid was formerly prevalent every fall and winter, but which is now relatively free from the scourge, the health physician told the story as follows: "We made a series of examinations of the tap-water and, at the same time, of the water from the lake (whence the city received its supply), and from the harbor (into which many of the sewers emptied). We were puzzled to find that sometimes the tap-water was like lake water and sometimes almost exactly the same as the harbor water diluted. I asked the water commissioners about this, and they said they could not explain it. Finally one day, when I was investigating an epidemic of typhoid, I mentioned the matter to one of the employes, and he said: 'Why, the island inlet is open now.' What in —— is the 'island inlet?' I said.

Then he explained that it was the old intake, abandoned years ago for general use, but opened whenever ice clogged the lake inlet or whenever a large fire placed extra demands on the water supply. I ordered it closed, but it took a good deal of fighting to make the commissioners keep it closed, and for weeks some of them would not speak to me on the street."

Similar instances might be multiplied, but one suffices. Perhaps there are two morals to be drawn: the need of backbone in a health official and the advisability, other things being equal, of choosing for any office a lifelong resident of the community who is thoroughly familiar with its history. Canandaigua, N. Y., a town of some 4,000 population, has recently passed through an epidemic of typhoid amounting to as many as fifty cases a month, nearly every case occurring among those who persisted in using well water instead of the excellent corporation supply drawn from Canandaigua Lake.

But it does not require a bacteriologist to apply the practical solution of the problem. It is no infrequent thing to find lay members of health boards intelligently active in the prevention of disease, though the credit of their work is usually given to the medical officers of such boards. On a comparatively small scale, we have seen the hygiene of water supply, drainage and disinfection carried out almost ideally perfect by the director of a boys' camp, under the direction of a gentleman who makes no claim to medical or bacteriological skill, but who believes in the practical application of the information on such subjects, which is within the grasp of every enlightened citizen. It would require too much detail of local conditions to explain how the camp was supplied with water and provisions were made against infection. On one unfortunate occasion a case of diphtheria developed a day or two after the arrival of the campers. Prompt isolation was enforced and every article that could not be deluged with an antiseptic solution was sacrificed to the flames. The result was that no other case developed, although the ordinary circumstances of contagion, that is of conveyance from person to person, were present.

It is a very practical advance in sanitary achievement to drop the distinction between *contagious* and *infectious*, or to retain the former word merely as a matter of convenience to apply to a special class of infectious diseases which are communicated with exceptional directness and ease. All sanitary science may be reduced to the single law: Do not take into your body the excre-

ment of another. The law is digustingly simple, yet practically every case of typhoid, consumption, yellow fever, cholera, dysentery, etc., means that it has been broken, and it is only in the case of the exanthemata from which germs are cast off in great abundance and are inevitably present in the dust of the sick room that the occurrence of infectious disease does not require an apology, not only on account of a sin against health, but against decency as well. To some extent we may evade the penalties of this law by boiling water and cooking food, but the use of manure on vegetables and fruits leaves a source of danger in plant products usually and they are best eaten raw. Expectoration, so commonly practised by sick and well, causes contamination of dust which no degree of neatness and care can avoid.

It is impossible to formulate prophylactic rules from the standpoint of the individual threatened, with hope of doing more than lessening the chances of infection. The only efficient means of accomplishing sanitary triumphs must be brought to bear upon individuals or things which are possible sources of danger. Society must insist that food, drink and air be kept pure, not that some one teach it how to dodge impurities. The disinfection of the discharges from an infectious case must be carried out immediately, whether we are dealing with typhoid faeces, foul urine or tubercular sputum. Walking patients who do not observe the rules of decency and health must be treated as criminals Pity for their own sad condition must not blind us to the fact that the consumptives who spit on the street and the syphilitics who use other than their own private eating and drinking utensils, as well as all other infectious invalids who distribute bacteria of disease, are potential murderers. Heavy penalties must be laid on physicians and attendants who fail to enforce efficient disinfection. Much can be done simply by instructing and appealing to the philanthropy of the laity. Cities and villages situated on fresh water must stop playing wolf and lamb—in other words, quarreling over the "right" to befoul the water which all must drink. Sewage is a valuable commodity and may be made a source of revenue for any large city, while cities of the second and third magnitude can at least make its products pay the expenses of disinfection and separation. By wasting sewage large cities are draining the organic potency of the country and are worse than throwing away valuable and much needed fertilizing material.

In only one respect will sanitary reform of abuses of water supply have to encounter a greater obstacle than popular inertia. The lines of watershed and the drainage areas of lakes, rivers and brooks are established in the sentiments of nearly all peoples as sites of preference for cemeteries. Even the stone age inhabitants of the world adopted this custom, and it is doubtful whether it is to be ascribed to some primitive sentiment or to the material circumstance that it was usually easier to dig a grave in sand or alluvial material than in ordinary earth. In Philadelphia we have the pleasing spectacle of a cemetery and waterworks on opposite banks of the Schuylkill, while the names of various cemeteries of the country suggest the eagerness with which the vicinity of water supplies is chosen. Personally, we believe that the hygienic argument against interment has been rather exaggerated and that, so long as cemeteries are not crowded and not situated too near water, contamination of neither water nor air is to be feared. However, in our opinion the only reasons for preferring interment are historic and archæologic, and these are already superseded.

Human society existed for centuries on the principle that each individual—with some exceptions—had the right to self-protection by whatever means were necessary, including the carrying and use of weapons, but no organized effort was made to keep the highways free from malefactors. The very principle of self-protection involved the corollary that arms might be carried for offensive as well as defensive purposes—in practice, not theory. At the present, the efficiency of police protection renders the bearing of arms less and less necessary, so that popular opinion upholds restrictive ordinances which are really contrary to the spirit of the United States Constitution regarding the wearing of weapons. In no truly civilized country is it now necessary, or even expedient, for the average citizen to carry weapons of any description. The sanitary science of the present, however, follows too much the old principle of self-protection; that of the future must recognize that the protection of the state against bacteria of disease, just as against the weapon of the footpad, is the only method which can promise radical improvement of existing conditions.

THE PLACE OF THE STATE IN DEALING WITH TUBERCULOSIS.*

By Peter H. Bryce, M. D., of Toronto,
Secretary of the Provincial Board of Health of Ontario.

Should anyone examine into the legislation of any State or Province on the continent of America prior to the last twenty-five years, or indeed into that of any of the countries of Europe prior to the last fifty, he will be surprised not only at the paucity of the laws dealing in any systematic manner with what we now call social subjects, but especially of any laws providing for systematic State or municipal supervision of the public health. In European countries, and notably in England, it is true that, prior to this period, poor-laws, workhouses and dispensaries existed, but it would appear that they were established rather as a disagreeable necessity than as being a recognition of the claims of the poor and sick upon the benevolence of the State. But, further, if we turn to the legislation of Germany, we find that not till 1880 did the great Chancellor seriously set himself to the consideration of legislation intended to deal seriously with the internal problems which have had since that time such far-reaching and beneficial results on the well-being of the working classes of the fatherland.

As regards public health laws, the crudity of State and municipal legislation everywhere might be illustrated by extracts taken from the annual reports of Dr. John Simon, who, in 1849, during the cholera epidemic, was placed in charge of the public health matters in England; or we have only to recall how recently the first State Board of Health was appointed on this continent in order to comprehend that public medicine is practically not more than a quarter of a century old in America.

The reasons for this are not difficult to discover. Let anyone but read the various theories and practices in medicine referred to by Dr. Oliver Wendell Holmes in a publication of some forty years ago on "Hahnemann," and it becomes at once apparent that scientific medicine was then but in its chrysalis stage. Not, in-

* Read at the meeting of the American Public Health Association in Philadelphia, October, 1897.

deed, until that series of investigations begun in 1850 by Davanie, into the origin of charbon advanced to the stage in 1863 of the recognition of its spores by Pasteur, developed still further as to their meaning by Koch in 1870, and splendidly concluded in 1877 by Pasteur himself, was the germ theory of disease brought into full life, and the immovable basis constructed upon which modern medicine and public hygiene have been established. Five years later the discovery by Koch of the bacillus tuberculosis was to prove the point d'appui whence were to be made the advances and attacks upon the citadel whence come forth the array of multiform types of this disease, which—like the hordes of Attila—have spared neither age nor sex, but which, since history began, have left in every age, in every clime and amongst every race, dead infant, budding womanhood and warrior in his prime strewn thicker than from any other cause on the oft-trodden battlefield of time.

Statistics taken from almost any country will abundantly illustrate this, but, taking those of Ontario, as seen in the following, we obtain abundant food for thought:

ONTARIO STATISTICS.

Deaths from tuberculosis in Ontario in successive census years:
1871—1,042, or 11.2 per cent. of all deaths.
1881—2,397, or 10.8 per cent. of all deaths.
1891—2,463, or 11.4 per cent. of all deaths.

Deaths from tuberculosis in Toronto in 1890-1896:

1890	387
1891	430
1892	477
1893	512
1894	442
1895	430
1896	442

Total deaths from tuberculosis in United States in 1880, 91,551, or a little better than 12 per cent. of all deaths having reported causes; 1890, 101,903.

Divided as follows in 1890: North Atlantic division, 37,443, or a ratio of 2.2 per 1,000 population; south Atlantic division, 14,-

670, or a ratio of 1.7 per 1,000 population; north central division, 29,922, or a ratio of 1.3 per 1,000 population; south central division, 15,304, or a ratio of 1.4 per 1,000 population; western division, 4,564, or a ratio of 1.5 per 1,000 population.

MORTALITY IN ASYLUMS.

Table of returns of Ontario asylums, giving inmates, admissions, annual deaths and percentage of deaths from tuberculosis:

Year.	Inmates.	Yearly Admission.	Annual Deaths.
1871	1,366	166	62
1881	2,584	161	166
1891	3,865	308	190
1892	3,985	125	211
1893	4,174	189	243
1894	4,334	160	241
1895	4,557	223	309

Table giving the total deaths in Ontario asylums (exclusive of Mimico) during 1892 from tuberculosis, in a population of 4,231, the total deaths from all causes being 211:

Residence.	Total Deaths.	From Tuberculosis.	Per Ct. of Total.
Under 1 year	72	7	9.7
Between 1 and 2 years	25	5	20.0
Between 2 and 3 years	40	9	22.5
Between 5 and 10 years	19	10	52.6
Between 10 and 15 years	16	6	37.5
Between 15 and 20 years	15	2	13.3
Over 20 years	24	2	8.3
Total	211	41	23.4

THE PROVINCE OF GOVERNMENT.

Without here referring further to the story which such statistics tell, it is my purpose to indicate what we as executive officers

of health have to labor for in State or city, not so much in carrying out every law and by-law for lessening the dangers of the spread of infection from the tuberculized as to point out the relation which these facts bear to the State and municipality, whose place in the evolution of modern society is yearly becoming more generally comprehended and more accurately defined. It is not necessary to discuss here even for a moment whether this association holds the doctrines of individualism, socialism, or that "juste milieu" between them, of State socialism. This association here in convention, as representatives of national, State, provincial, or municipal governments, sufficiently illustrates that, to use the words of Adolph Wagner, the foremost representative of State socialism in Germany, "we have entered the social period, characterized by new economic ideas, new political views, and a new direction in practical life." Believing in no abstract theory as to the province of government, I hold it to be true in practice that the quality of any legislation must be judged by its results, or to use the words of another, "By their social value, their capacity for promoting social welfare must the plexus of institutions, organizations and arrangements, in and by means of which the economic life of the nation be carried on, be tried."

Let us then turn to the array of figures already set forth and endeavor by comparison to understand their bearing. We see that in the Province of Ontario 2,500 deaths, or nearly that, a year has been the annual sacrifice to this Moloch of chronic diseases. But it means much more than this. Compare the parallel columns of tuberculosis and insanity. It will appear that in 1895 the cases of insanity in the asylums of Ontario were nearly double the number of deaths from tuberculosis. But if we compare the deaths in the asylums with those from consumption we find they are not one-tenth the number annually. Further, it is most important to note that of the total asylum deaths there is annually nearly 23 per cent. due to tuberculosis. But even with this potent factor in the death rate in Ontario asylums, it is plain that with an annual death rate slightly over 5 per cent. of all inmates, it would take twenty years for an asylum population of 5,000 to die; whereas this number of consumptives die in every two years, or, roughly, ten times as many persons become affected with tuberculosis every year as with insanity, and ten times as many die. Drawn, therefore, from the ranks of "les candidates de la tuberculosis," as Prof. Verneueil calls them, some 2,500 persons,

mostly above fifteen years of age, are enrolled in the ranks of the tuberculized, not to mention an undetermined number whose deaths are registered as due to diarrhœa, chronic atrophia, anæmia, and so on.

EARLY LEGISLATION IN ONTARIO.

In pursuing this study it has been of further interest in connection with the evolution of the sociological problems of the care of the mental and physical defectives in the Province of Ontario to note the growth of the institutions for dealing with these several classes. I find that the Legislature of the Province, which is now Ontario, passed in 1839 an act providing for the erection of a lunatic asylum, with powers to levy one penny in the pound on the several electoral districts of the Province. Already in 1826 a bill had passed permitting the local magistrates to levy taxes for the support of houses of industry, and prior to that again the Government had granted certain lands in the town of Toronto, vested in trustees, for a district hospital. From time to time, as in the cholera years of 1832-33, this hospital received a special grant for caring for immigrants. But the systematic extension of any class of these institutions, unless it be the asylumns, was wholly spasmodic until 1874, when the granting of Provincial aid, based upon Government inspection, to the several classes of benevolent institutions was systematized. The "charity aids act" divided these into three classes—hospitals, refuges and orphanages—each receiving a per capita grant for each inmate respectively in addition to municipal support and private benefactions. The extent to which these institutions have grown during the last twenty years becomes of much interest and importance in our present study. Thus there were in Ontario, in 1874, 10 hospitals with State grant of 30c. per diem; in 1887, 18 hospitals, with State grant of 30c. per diem; in 1896, 39 hospitals, with State grant of 30c. per diem. In 1874, 4 refugees, with State grant of .07c. per diem; in 1887, 21 refuges, with State grant of .07c. per diem; in 1896, 32 refuges, with State grant of .07c. per diem; in 1874, 13 orphanages, with State grant of .02c. per diem; in 1887, 29 orphanages, with State grant of .02c. per diem; in 1896, 31 orphanages, with State grant of .02c. per diem.

The increase in the asylum population from 1,366 in 1871 to 4,709 in 1896 has already been noted. The increase in the num-

ber of patients is yet more reasonable. The total hospital population in 1878 was 4,372, while it had increased in 1896 to 17,517, or the increase in the single year, 1894, equaled one-third of the total hospital population eighteen years before. The number of inmates of refuges was, in 1878, 1,300; in 1896 the number was 4,355. The number of inmates in orphanages was, in 1878, 1,356; in 1896 the number was 3,995.

COMPARATIVE COST OF MAINTENANCE.

For each of these State-aided classes the annual increase in cost of maintenance is most remarkable.

The asylum maintenance, exclusive of buildings, was in 1871, $173,611.11, and in 1895, $595,843.13.

The hospital maintenance was (buildings being erected by municipality), in 1878, $93,067.63; in 1896, $421,809.79, and in 1896 the total Government grant was $110,082.09.

The refuge maintenance was, in 1878, $51,176.52; in 1896, $193,160.17, and in 1896 the total Government grant was $51,306.89.

The orphanage maintenance was, in 1878, $11,223.34; in 1896, $116,570.52, and in 1896 the total Government grant was $15,594.97.

When it is remembered that all this development has taken place in a Province already well settled in 1871, with a population increasing but slowly in the two following decades, sending many of the younger population westward as colonists, as seen in the following table of populations—1871, 1,620,851; 1881, 1,926,922; 1891, 2,114,321—the evolution of the social organism may well be considered a remarkable one. If the cost of these public institutions, which housed a population of 28,327 in 1896, were estimated an aggregate of many millions would have to be added to the yearly maintenance, which for the asylums alone amounted from the Confederation in 1867 to 1895 to a total of $9,854,479.98.

Reference has already been made to the fact that some 23 per cent. of all deaths in the asylums is annually due to consumption, and I find that in the returns from hospitals for 1896 some 430 persons are said to have been treated for tuberculosis in the several hospitals of the Province. Of the consumptive patients treated in the four hospitals of Toronto some 25 per cent. died.

THE WORK OF SANATORIA.

It is quite apparent, therefore, that public aid is incidentally extended to a certain percentage of consumptives in Ontario; but, judging from the number of deaths, it is apparent that they go to the hospitals to die comfortably rather than with any idea of recovery.

It may perhaps seem to some unnecessary that this résumé of the evolution in a modern community of systematized charity or organized benevolence toward the mental and physical defectives should have been made in order to lead up to the main subject of this paper, but it has appeared to the writer absolutely necessary to set forth from a broad standpoint the reasons and, by illustration, the methods for dealing with this problem.

Accepting Guerrard's figures for New York City as illustrative, we find that of every 1,000 deaths from all causes between the ages of 15 and 60, or during the productive years of human life, there died from tuberculosis 373.9 on an average for the six cities of Berlin, Vienna, Prague, Paris, Brussels and New York. Under similar conditions this percentage of 37 per cent. of all deaths will be generally found to exist in the large cities of temporate climates.

Applying the common calculation, as given by Guerrard, where he states the estimated loss to the city of New York due to the annual deaths of 6,072 persons from tuberculosis as $6,072,000, the economic loss to Ontario in 1895 was $2,472,000. It is now a fact established by numbers of observations and statistics that from 50 to 75 per cent. of all cases of tuberculosis, in the early stages, treated in special sanatoria may be restored to comparative health, while some 35 per cent. will permanently recover. Hence it may be said that were the assumed 5,000 consumptives existing to-day in Ontario placed in sanatoria, at least 50 per cent. of them would be preserved to produce wealth for the State. In other words, the annual loss of $2,472,000 would be saved. The lessening of such a number of infective centres of disease means an immediate reduction in the number of new cases, and of the number demanding treatment. Many other results of an economic character, such as the cost of sickness, loss of time through nursing, might be added, but these suffice to indicate the nature of the problem.

GOVERNMENT INTERVENTION.

State Socialists, which, by our own confession, we are agreed that, once accept the principles of State intervention in economic affairs, and the distance to which such principles should be carried can only be determined by expediency and by circumstances of time and place. I have attempted to illustrate how far this intervention of the State has gone in the care of defectives under a single progressive Government on this continent and in a Province organized only a hundred years, and which has had for exactly one-quarter of this time as premier a single man representing what with us in Canada is called the Liberal party, and who perhaps would decline to be classed with the State Socialists of Germany. But it is not necessary that I do more than direct the attention of the American members of this Congress to what—in spite of the individualism which has been supposed to be representative of that liberty so long the boast of the people of the American Union—has grown up more or less in every State, but notably in one of the oldest of the Commonwealths, Massachusetts, which is perhaps the most developed and complete example of State Socialism or State intervention in social matters which exist on the continent.

It seems to me, therefore, that the question of how far the State will take up the public work of dealing with tuberculosis is decided by the dictum of one of the most advanced American writers on economic problems, viz., "That it is the duty of the State to do whatever cannot be done so well by the individual," and by the principles which we see daily being put into practice in every State, Province or city on the continent. The greatest distinction possible must be made between governmental intervention for the sake of the people and State interference for the sake of the Government. What, then, remains for us to consider is simply, Is such intervention of State and municipal government in dealing with tuberculosis expedient? And, if so, is it practicable?

With regard to the question of expediency the matter of compulsory notification comes up, and its pros and cons have already been much discussed. It may simply be said in regard to this that there is every reason to believe that through this means information as to the measures necessary to lessen the dangers of infection may be disseminated among the people, and that sufficient

benefits will result therefrom to make such notification perfectly justifiable; yet it must be for this purpose principally, and not for purposes of official supervision, until the necessary complement of municipal and State sanatoria shall have been generally established. It is manifestly apparent from the overwhelming statistics at our disposal that, however much we may expect from efforts to make the homes of consumptives more sanitary and less dangerous to the healthy, infinitely more is necessary if we are seriously to attempt to deal with this disease, which annually slays over 100,000 persons in the United States alone. We must, in fact, apply the principles which underlie our methods of dealing with other contagious diseases, modified in a manner consonant with its characteristics as a chronic disease.

THE TREATMENT OF CONSUMPTION.

We have already indicated the several classes of charitable institutions, as asylums, hospitals, refuges and orphanages, which are recognized by the State as legitimate objects of its support and supervision. It will be most obvious that the conclusion to which the argument of this paper points is that institutions partaking of some of the characteristics of each of these several classes are demanded as the means by which we shall begin the systematic attempt to combat the ravages of tuberculosis. So long ago as 1882 Dr. T. Gilbart-Smith presented to the Social Science Congress of Great Britain the report of the Council of that association on "Administration of Hospitals," in which it was stated: "Efficient medical relief is an urgent, every-day necessity, which hitherto has been principally provided through channels which exhibit all the faults of inadequate organization and isolated efforts." This report further states that in the metropolis, with a population of 4,500,000, there were 30,000 beds available for diseases and accidents, excluding those of lunatic asylums, but, notwithstanding this splendid benevolence, the report states: "There is, moreover, a class of illness which, refused admission into hospitals, is unsuited for workhouse infirmaries. Such diseases as consumption, hip disease and other slow, chronic ailments requiring a lengthened treatment, country air and surgical appliances, are almost entirely neglected. Medical relief, to be complete, should effectively deal with these." This was said in 1880, although there were at the time in London four hospitals, aggre-

gating 482 beds, for "diseases of the chest and consumption." Well might this be said with an annual death rate from phthisis for that city of over 8,000. That something has since been done is evident from the falling death rate, but how slowly is seen in the following table:

	Deaths from Phthisis Per 1,000.
1851-60	2.86
1861-70	2.84
1871-80	2.57
1881-90	2.09
1891	2.00
1892	1.88
1893	1.80

Total deaths 1893, 8,179.

Turning to our own continent and to the splendid hospital accommodation in all of our cities, we are forced to repeat the conclusions contained in this report to the Social Science Congress in 1882.

Dr. Guerrard, of the New York Health Department, after referring to the steady decline of tuberculosis in New York during the last ten or twelve years (the rate per 1,000 in 1896 was, nevertheless, 3.06), asks this question: "If this decline be true—and these hygienic measures, inadequate as they have been, have produced such distinctly good results—how much more may we hope to accomplish by organized legislative control, and the establishment of public hospitals for the systematic treatment of the tuberculosis poor?"

HOMES FOR CONSUMPTIVES.

But I need not further refer to the practically total absence as yet in all our charity organizations of any attempt to deal with the matter. What is demanded at any rate so far as Ontario is concerned, is not so much an increase in the expenditures necessary for public charity as a change in the direction and mode of its application. The average number of days of consumptives in hospitals in Toronto was in 1896 about 50, or about 20 days longer than the average for all patients; while of the admissions for this short period in the hospital there were 25 per cent. of deaths.

Manifestly, as Dr. Gilbart-Smith, of London, says, general hospitals are not the place for consumptives. Naturally we turn to the single illustration on this continent of an ideal home for consumptives and find in the Saranac Lake Sanitarium, which has grown up under the fostering care of the beloved Trudeau, a type upon which all future efforts in this direction must be based. And yet, think of it, 90,000,000 people represented in this association in the fifteenth year since Koch's discovery! In these fifteen years during which more than 2,000,000 persons have died on this continent from consumption, all our efforts to systematically deal with the disease are represented by one model "home," which in 1896 extended its arms to 177 persons, of whom of those reported upon 17 remained three months or less, and 89 remained from three months to 25 months. But if the movement has been pitiable in its slowness, there is now but one unanimous opinion that the true science of medicine—and it is the science of sanitation—has at last found a voice, and that the dream of Gross, of Flint, of Moore and of Loomis, seers among medical men of science in America, each of whom in his last years, peering into the future, uttered prophetic words that the time would come when diseases would be prevented rather than cured, is beginning to be realized as regards tuberculosis.

THE WORK IN ONTARIO.

But it will have been remarked that this beginning has not been due to the State, but to private philanthropy. Yet the seed is sown. That Canadian statesman, before referred to, has, I believe, been the first on this continent to recognize that "Homes for Consumptives" hold the same relation to, and have the same claim upon, State recognition as other hospitals, since to a Home for Consumptives recently erected by private benevolence in the Adirondacks of Canada, the great Muskoka country, he has extended the per diem grant allowed to the general hospitals by the Legislature. This is not the place to discuss whether too much or too indiscriminate charity is being given by our hospitals and homes. Suffice it to say that both in England and in America serious demands of a reform in methods exist. But when the absence of method in, and the primitive character of, Ontario charities 25 years ago is understood, and show by a single act of the

Legislature, passed in 1874, the scheme of public grants to charity became so systematized and complete as to have practically remained unchanged ever since, it would seem quite practicable that the necessity for changes due to the evolution of social and scientific methods needs only to be realized in order to have the same organized energy directed to dealing with homes for consumptives, as for asylums, hospitals and refuges.

Within a comparatively few years, in addition to the growth of charitable institutions, as already illustrated, the rural countries in one-third of the whole Province of Ontario have established County houses of Industry, or homes for the aged poor, each receiving a certain annual grant for construction from the Government, as will be seen from the following table:

County.	Inmates per year.	Deaths.	Per-centage.	Average cost.
Waterloo.	92	13	14	$6,018 88
Oxford	77	7	..	6,597 83
Wellington	74	8	11	5,232 78
York	87	18	18	5,959 33
Norfolk (2 years)	45	9	20	2,062 06
Huron (2 years)	73	5	12	12,871 00
Elgin	54	10	18	4.055 45

WORKING DETAILS.

With us, therefore, in Ontario, whether in rural or urban municipalities, we have the principals of State aid already being carried out. But we may be asked for working details. For cities this seems easy. Comparatively few or none of the northern belt of States and Provinces are lacking in favored localities where protected sites with surrounding forest areas and pleasant warm soil may be chosen, where cities may select "homes" for themselves. Transportation has caused distance to almost disappear, and the idea of banishment from home and friends would in such cases not exist in practice. But is the cost within our means? Take, for instance, the city of Toronto, where the deaths in 1896 from tuberculosis were 442, it is found that the four city hospitals alone in 1896 had 6,492 inmates, with an average residence of 34 days, or a number equivalent to over 580 persons received continuous treatment throughout the year, and of these 473 were con-

sumptives, at a daily cost of 64 cents per capita, or $9.50 per week. The cost per patient at Saranac Lake is about $6 per week. Of the total cost of maintenance in Toronto the Government paid 38 per cent., or, in 1896, a total of $39,207.19. Assuming the same proportion of cost as in dealing with other classes of disease, we see that in the city with by far the highest mortality from the disease in Ontario it would be a comparatively easy matter for such a city to have several "Homes for Consumptives" similarly managed and inspected, to which every case of tuberculosis within her borders could be sent in the initial stages of the disease, and in a large percentage of cases be cured. Their friends would be protected, and the State would retain their productive energies.

How many consumptive patients require aid might be illustrated by the proportion of inmates of asylums who pay a proportion of their own maintenance. In 1896 the percentage of paying patients in Ontario asylums was 19 per cent. of all patients, and the proportion to the total cost of maintenance was $97,898 to $595,843, or one-sixth of the total cost. With a much shorter necessary residence the proportion of paying patients would be proportionately greater, as shown from the Saranac Lake returns. There, in an institution not maintained at all for the rich, $17,880.39 was raised from patients in 1896, while the actual running expenses were but $23,815.44. What, then, we may advocate as a present practicable scheme is for the Government to loan money, as on drainage debentures, at low rates of interest to cities and counties, pay a percentage of the cost of maintenance as to hospitals at present, and then private charity added to municipal grants will accomplish the rest.

THE AIR CURE AND HYGIENE.

The choice of location is important, but as the universal voice of the Moscow Congress just closed expressed itself, C'est tonjour l'air-cure et le reglement de la vie. It is air-cure and hygiene. It is to France that we have to look for the first systematic attempts to deal with a class of the tuberculized, for since 1888 a number of hospitaux marins, or seaside hospitals, have been established for children. These have received large subventions from the departments, and in five years ten hospitals of 1,756 beds existed along the ocean from the jour prolonge est de regeneur.

The statistics for 1894 represent at least 70 to 75 per cent. of cures where the stay is prolonged. After a statistical study of these hospitals, Dr. Leroux, of Paris, draws the conclusion: "Pour obtenir du treatment marin tout l'effet curateur attendu un sojour prolonge est de rigeneur."

In Germany private sanitoria, as at Falkerestain and Gorbersdolf, and hospitals at Ventnor, Bourneville and Torquay, in England, have long since taught us how much can be done, and many private sanatoria on this continent have obtained most gratifying results.

But the era of experimentation in dealing with tuberculosis has gone by. As Aeneas, driven by the fury of Juno for years over tempestuous seas before he reached Italy and the dear Lavinian shores, so succeeding generations,

> "Multos per annos
> Errabant acti fatis maria omnia circum."

Men have exploited nostrums of every kind, being driven by the Parcean fates to spin and unwind the thread of life like Clotho, and to imitate Lachesis by casting lots if perchance they might throw a number which would bring life and healing, only at last to find themselves in the unalterable, unrelenting hands of Atropos the Unchangeable. All these years have people been blinded to the simple truth that instead life has been in the air and sunshine around them.

The age of practical sanitation has come! Gentlemen of the association, this great work in the cause of humanity is in your hands. I leave it with you.

In the words of the greatest poet of scientific evolution, our late beloved Laureate,

> "O ye, the wise who think, the wise who reign,
> From growing commerce loose her latest chain.
> And let the fair white-winged peacemaker fly
> To happy heavens under all the sky,
> And mix the seasons and the golden hours
> Till each man finds his own in all men's good.
> And all men work in noble brotherhood."

THE SOURCE OF INFECTION IN LEPROSY.

NEW YORK, April 24, 1898.

To the Editor of the New York "Medical Journal":

SIR—I have read with much interest your editorial on Leprosy and the Nose in yesterday's issue of the "Journal," in which reference is made to the investigation of leprous lesions of the nose by Dr. G. Sticker, and of leprosy of the nose, throat and larynx by Jeanselme and Laurens, the results of which were presented to the recent Berlin Leprosy Congress.

These communications, based upon bacteriological studies, have excited a great deal of interest among leprologists. They must be regarded as among the most noteworthy and valuable contributions recently made to our knowledge of leprosy, as they tend to throw light upon an obscure chapter in the ætiology of the disease. Notwithstanding the identification of Hansen's vacillus as the active pathogenic agent in the causation of leprosy, it must be confessed that our knowledge of the modes of infection and the channels through which the bacilli gain entrance to the system is by no means definite.

Of the one hundred and fifty-three cases studied bacteriologically by Sticker, evidences of leprous changes in the nasal mucous membrane were found in all but thirteen. As these changes often preceded by several years the first cutaneous nodules or the first nervous symptoms, Sticker maintains that they constitute the initial lesion of leprosy. Jeanselme and Laurens found leprous lesions of the nasal fossa, the mouth, throat and larynx in 60 per cent. of the cases examined by them. As a result of their studies, they conclude that chronic coryza is often the first exterior manifestation of leprosy, and that the nasal mucous of lepers is of great virulence and constitutes one of the most efficient sources of the propagation of leprosy. The results of these investigations were first presented before the Société Médicale des Hôpitaux de Paris, July 23, 1897.

As I arrived at practically the same conclusions several years before from my clinical studies of the disease, I am gratified to have my views confirmed by bacteriological proof. As evidence of priority I may be pardoned for quoting in this connection from my article on Leprosy (Morrow's *System*, vol. iii, Dermatology, 1894, p. 572): "Contrary to what is usually taught, I believe that

the first manifestations of leprosy are, in the majority of cases, determined toward the mucous membranes of the pharynx and upper air-passages. According to my observation, alteration of the voice, betrayed by a slight husky or rough phonation, rhinitis with an abnormally free nasal secretion, sometimes epistaxis, and an increase in the salivary secretion, are among the earliest signs of leprosy. At a more advanced stage, when there are leprous deposits in the mucous surface, with involvement of the cartilages and the bones, the characteristic harsh raucous voice, and the difficult sniffling respiration, from obstruction of the nostrils, are almost invariable concomitants. A patient in the early stage of anæsthetic leprosy under my observation can not go from a warm room into the cold air without liability to a copious nasal secretion compelling her to use her handkerchief almost continually." In considering modes of infection, I wrote (page 595): "The bacillus of leprosy may be introduced through more than one channel of entrance. Direct inoculation through the skin in any of the manifold ways which have been considered plays, in my opinion, a very unimportant *role* in the propagation of leprosy. In the vast majority of cases I believe that the vehicles of the virus through which contagion is affected are the secretions of the mouth and the nose, and that the port of entrance is the mucous membrane of the respiratory and intestinal tract, with secondary infection through the blood or lymphatic system." Again, in discussing prophylactic measures, I stated (page 605): "In view of the fact that contamination probably takes place from the buccal or nasal secretions, these should be disinfected or destroyed with the same scrupulous care as would be indicated in a case of tuberculosis."

So far as I am aware, I was the first observer to insist upon the precocity of mucous-membrane manifestations and to maintain that the buccal and nasal secretions constituted the chief source of infection in leprosy.

PRINCE A. MORROW, M. D.

New York "Medical Journal, April 30, 1898.

LEPROSY AND THE NOSE.

Dr. W. Scheppegrell, of New Orleans, one of the associate editors of the "Laryngoscope," has a signed article in the April

number of that journal in which, after remarking upon the heightened attention paid to leprosy of late years, as exemplified by an international congress devoted to the subject which lately met in Berlin, and giving a brief résumé of the conclusions arrived at by the congress, so far as any were reached, he presents the views of Dr. Sticker, who has made a very comprehensive investigation of the subject in India.

Sticker states that during the whole course of the disease that portion of the body from which leprous persons emit the greatest number of the bacilli that are supposed to give rise to leprosy is the nose. He has found also that of all parts the nose most readily receives the bacilli, so that in nearly all instances infection takes place by way of the nasal cavities. It is as usual, he implies, for leprosy to originate in the nostrils as for tuberculosis disease to find its first lodgment in the apices of the lungs—he is speaking of proportions, of course.

With regard to the peculiar lesions found in the nostrils in cases of leprosy, Jeanselme and Laurens ("Bulletin Médical," July 25, 1897) have found that fifteen out of twenty-five lepers examined by them, the nervous form of the disease being excluded, had lesions in the nose and throat. Those authors state that often the first manifestation of leprosy is an ordinary chronic coryza, nasal obstruction, the formation of crusts, epistaxis, or the like—all supposed to be due to penetration of the Schneiderian membrane by Hansen's bacilli. One of the most important of the nasal manifestations is epistaxis. The nasal lesions that accompany it are such as to change the configuration of the nose. If the cartilage of the sæptum yields, the nose may become shortened and assume the form of a saddle back. Rhinoscopic examination shows the Schneiderian membrane to be turgescent, eroded, and tumefied in the neighborhood of the lower portion of the sæptum, and in that locality the least touch may cause hæmorrhage.

At a later stage perforation occurs in the lower portion of the sæptum. When the perforation is recent, the portion of sæptum bordering on the opening is thickened and hard, and bleeds readily. When it is old, the structure is thin and tubercules are often found in the mucous membrane. The sense of smell is not noticeably affected, but anæsthesia is observed, either in consequence of the presence of the tubercles or quite independently of any eruptive manifestation. Frequently the entire mucous membrane of

the sæptum is destitute of tactile sensibility. The bacillus is found in the muco-purulent discharge of leprous rhinitis; and when there is epistaxis it is found in the blood.

The nasal mucus of lepers, says Dr. Scheppegrell, is extremely virulent, and it is supposed to convey the contagium of the disease in most instances. The lesions of the velum palati, those of the throat, and those of the larynx resemble the secondary or tertiary manifestations of syphilis, but the presence of anæsthesia establishes the diagnosis of leprosy. "Rhinology," says Dr. Scheppegrell, "which in former years was treated with the most contemptuous disregard in medical publications and but rarely referred to in the text-books, is thus finding its proper position as an important branch of medicine, and its study now ranks with that of the stomach, kidneys, liver, heart and other organs as it deserves."—*Ibid,* April 23, 1898.

THE RED CROSS.

They too have heard the drum-beat,
They follow the bugle's call,
These who are swift with pity
On the field where brave men fall.

When the battle-boom is silent,
And the echoing thunder dies,
They haste to the plain red sodden
With the blood of sacrifice.

The flag that floats above them
Is marked with a crimson sign,
Pledge of a great compassion
And the rifted heart Divine

That once for man's redemption
Knew earth's completest loss.
These to the field of valor
Bring love's immortal cross.

And so they follow the bugle,
And heed the drum-beat's call,
But their errand is one of pity—
They succor the men who fall.

—Harper's Bazar.

MEDICAL OBSERVATIONS IN THE TROPICS.

MALARIAL DISEASES.

By Prof. Koch.

Dr. E. O. Shakespeare, a member of the National Relief Commission ("Philadelphia Ledger," July 6), has received a copy in German of a recent lecture by Dr. Koch, of Berlin, on "Medical Observations in the Tropics," which, in addition to its general interest, contains suggestions that may at this time be of value in connection with United States troops located in districts where malaria is present. In his lecture Dr. Koch gives the results of his study of the disease in South Africa, East India and German East Africa, and the statements which apply to these are just as applicable to Cuba and the Philippines since practically similar climate is found in them all.

Dr. Koch took as the basis of his theme the observations which had been made upon "Texas Fever of Cattle" by the American, Dr. Theobald Smith, of the Health Department of Massachusetts.

Dr. Smith has proven that in the blood of every animal attacked by this disease a characteristic parasite is to be found which, because of its pearlike shape and of its usual association in couples within a blood corpuscle, had been named "pirosoma bigeminam."

If blood carrying these parasites be injected into cattle from localities where this disease is not endemic these cattle will develop the Texas fever, and if they survive will become immune—just like cattle which come from Texas fever districts and are either immune from birth or have become so while young through having survived an early attack. The conveyance of the germs of the disease (from animal to animal) is accomplished, as Dr. Smith very curiously demonstrated, through wood ticks. It was a remarkable fact that the conveyance also took place through ticks which were not obtained directly from a diseased animal, but were in fact the younger generations of such ticks.

Dr. Koch repeated the above mentioned experiment with young ticks not obtained directly from cattle suffering from Texas fever, but from the progeny of such which were perfectly free from any such contact. The ticks were obtained from sick cattle in Dar-es-Salaam, and their eggs were inoculated into cattle in West Usambara, a country where the Texas fever has never been known.

The animals became ill with the disease, but in a mild form, however. These very cattle, after their recovery, were brought to the coast, and showed themseles to be immune, a proof of the correctness of Dr. Smith's conclusions.

After having thus cited and explained this theory, Dr. Koch went on to show that, if on the one hand the conveyance of the germs of the disease and their inoculation by means of an insect be proven, and on the other hand the possibility of immunizing against infection be established, the conclusion that similar relationships exist in other diseases cannot be far distant. From this point he proceeded to the consideration of the group of maladies classed under the head of malaria.

Malarial Diseases.

He stated that the parasite which causes the disease had been already discovered and the course of the febrile symptoms which it calls forth established. The changes which the parasite itself undergoes during an attack had also been learned before Dr. Koch took the matter up. At first the blood parasite is in the form of a ring; it then takes on the aspect of an irregular mass, to finally gather itself together into a small ball surrounded by 15 or 16 round granules.

Thus far had investigation proceeded when Professor Koch began his researches. He soon perceived that the many varying forms of malaria belonged really to only four varieties, of which two may be left out of consideration, for the reason that they are seldom met with. Of the other two, one corresponds exactly with the "tertian ague," and comprises about 10 per cent. of the cases; the other 90 per cent. constitute the true "tropical malaria."

With tropical malaria, the course of the febrile symptoms is more complicated than in the case of tertian ague.

Dr. Koch was also able to establish the relations in which the changes of form of the ring-shaped parasites stand toward the temperature curve. This is of the greatest importance in order to fix the period when the physician must proceed against malaria with quinine, since the drug does not render the parasite harmless, but only hinders its development. Up to the present time this favorable moment for administering quinine was not known, and in lack of the knowledge it had to be administered arbitrarily. Henceforth the physician will be enabled through microscopic examinations of the blood of the patient to determine exactly by the form of the parasite in which stage the attack is observed,

and thereby to indicate surely the moment when by means of a dose of quinine the parasite can be hindered in its development. Dr. Koch has put this theory to the test in medical practice, and has not a single failure to record.

The lecturer next touched briefly upon the question of the recurrence of the disease, against which he proceeded with regular doses of quinine up to 15 grains. He pointed out that sanatoria for those suffering with tropical malaria are useless, for the disease once acquired the outbreak cannot be hindered through climatic influences.

Dr. Koch stated that the opinions at present accepted concerning the origin and transmission of the disease are ungrounded. A direct conveyance of malaria is, indeed, possible by experiment, but does not occur in nature. Malaria is not infectious. Through experimentation with water from malarial districts Dr. Koch proved that malaria is not a water-borne disease. It also seems that malaria is not produced through the respiration or the food, but the fact that, like the Texas fever of cattle, malaria may be conveyed and inoculated by blood-sucking insects like mosquitoes is becoming, through the support of ever-increasing observations, more and more certain. How this transmission takes place must first be established experimentally. It is probably a complicated and indirect process. Perhaps it is by means of the succeeding generations of the insects which have taken up the germ and are capable of disseminating it. The disease does not break out immediately after infection, the period of incubation being from 10 to 14 days. From his observations in East India and Africa, Dr. Koch established the fact that malaria is prevalent chiefly along the coasts. In elevations above 4,000 feet no infection takes place.

In direct line with his observations in the tropics the lecturer stated that mosquito netting is a most important means of guarding against malaria. As to immunity against malaria in the tropics, he said there is no race of men that is completely immune. The black, East Indian, Chinese, are all as much its prey as the European. If, however, in spite of this, the negro of the coast seems to be immune, it may be because he inherits this immunity or acquires it during the early years of his life. If the immigrant becomes immune in time then it may be held that there is a natural immunity. If the latter be the case, then science must ultimately succeed in producing artificial immunity.

MEDICAL EXCERPT.

By T. P. Corbally, A. M., M. D.

Acidity of Urine, Its Determination.—M. Charles Lapierre ("La France Médicale," 3d June, 1898) presented the following summary to the Académie des Sciences: It is one of the most complex questions in urinological investigations, and it is also one in which there exists the greatest confusion. The doctor will reasonably attach much importance to the dose of the remedy in view of the diversity of methods recommended in France, as well as in foreign countries. It seems to me very desirable that a résumé of this subject be given.

The conclusions at which I have arrived are the subject of this note; the full development will be given on another occasion.

1. The acidity of the urine, measured directly, is due especially to monometallic phosphates: certain acids such as the hippuric existing in small quantities.

2. Uric acid, which acts only indirectly, and the other acids of the urine cannot, of themselves, in consequence of their small proportion, be the only cause of the acidity; in the normal condition these bodies represent only a fourth part of the total acidity measured by the method of the direct acidometer.

3. Acid phosphates are formed in the kidneys, either by the action of CO^2 on the dimetallic phosphates or by dialysis of them, as experiments that I have made for the purpose seem to prove.

4. In presence of the coloring indications, phosphoric acid, and consequently the acid phosphates, are never completely saturated with the alkalies. For one molecule of PO^2H^3 treated with sunflower the saturation is obtained with 1 molecule, 5 of soda; in presence of phtaleine, with 2 molecules instead of 3. (Berthelot, Joly, etc.)

5. The results obtained by direct dosage for acidity of the urine in connection with a preparation of sunflower, or even of phtaleine, by means of a solution of soda, are inferior to the real acidity of the urine, and therefore this method ought to be rejected.

6. The same conclusions will follow from the indirect dosage in connection with phtaleine, as has been found by M. Lepinois.

7. The method of M. Julie, based on the appearance of a permanent precipitate of the phosphate by the direct addition of the sucrate of lime to the urine gives results much inferior to those of the preceding methods, and ought also to be rejected.

8. Lime dissolved reacts on monosodic phosphate in presence of phtaleine by giving tricalcic and trisodic phosphates; in reacting on the disodic phosphate it forms tricalcic basic phosphate.

9. The only exact method of dosage for true acidity of the urine is that in which all the bases are substituted; that is, that which corresponds with salts theoretically neutral.

10. Among other methods affording a solution of the problem, that pointed out by M. A. Gautier in his Chimie Biologique, a method based on a previous alcaline treatment of the urine by means of a special solution of soda, followed by the precipitation by $BaCl^2$ of the phosphates and other salts, then the determination of the residual alcali gives the exact measure of the acidity of the urine. The method of procedure given by that savant may, we think, be simplified by the determination of the alcalinity of an equal part of the filtered liquid (Engel and Moitissier) and by the employment of the phenolphtaleine added directly to the liquid (Lapierre).

As may be seen, the results thus obtained are higher than those resulting from the use of the direct method.

11. In combining the preceding method with the direct determination of the acidity in the presence of chlorine of barium, and the phtaleine by the soda, without filtration, it is possible to determine the respective quantities of monosodic and of disodic phosphates that a given solution contains; in the urine, the two tests will give the approximate amount of these two salts, the monometallic phosphates and the dimetallic phosphates. In clinical practice great advantage may be derived from the application of these principles.

12. The results that I have obtained, experimenting with twelve different samples of urine, and the solutions denominated monometallic and dimetallic phosphates, either in the presence of uric acids or not, and of hippuric acid, have confirmed the preceding observations.

COCA ERYTHROXYLON has been so long known to the profession as an efficient tonic in cases of nervous prostration, when there is no organic disease, that, considering the number of preparations and some falsifications of it that have discredited its proper-

ties, a recent number of the "Provincial Medical Journal," London, invites attention to the fact that the leaf is the only part of the plant used, and that very much depends, therefore, upon the plucking of the leaf, and the time at which it is plucked; the subsequent care of the leaf being matter of considerable importance, and affecting very materially the preparations made from it. M. Mariani was the first in Europe who took up the study of the plant, and over thirty years ago commenced manufacturing for the medical profession the various specialities associated with his name, viz., "Vin Mariani," "Elixir Mariani," "Pâte Mariani," "Thé Mariani," "Pastilles Mariani," etc., preparations which are known all over the world, and which have acquired their well-known reputation by their purity and efficacy. "Vin Mariani" is agreeable, palatable, imparting by its diffusibility an agreeable warmth over the whole body, and exciting functional activity of the cerebro-spinal nerve centres.

Arsenic an Antidote for Thyroidian Extract.—MM. Bedard and Mabille, of Lille ("Gazette Hebdomadaire," 29 May) have proved by experiments on dogs that arsenic is an antidote for the thyroidian extract. It is known, the authors say, that large doses of the extract from the thyroid gland have caused serious disturbance in the action of the heart. These evidences of heart poisoning are easily obtained by feeding dogs on the thyroid gland. If, while the animals are using the thyroid, they are given arsenic at the same time, in the form of Fowler's solution, the glandular substance may be given freely without producing any cardiac disturbance. It seems, therefore, very desirable to give arsenic when treating patients with extract of the thyroid gland.

Salicylate of Methyl.—M. Catrin ("La France Médicale," 3d June, 1898) stated to the Société Médicale des Hapitaux that, in subacute articular rheumatism, the salicylate of methyl relieves the pain much better than the salicylate of soda, but does not act favorably on the pyrexia; it is better, therefore, to use these two therapeutic agents together, because that means enables us to obtain a more energetic action with smaller doses. He has been able without any inconvenience to use doses of the salicylate of methyl as high as 30 grains a day.

M. Siredy had never obtained any favorable results from the simultaneous employment of the two remedies. Salicylate of

methyl should be reserved for subacute and chronic forms, but the essential condition for success is that the envelopment of the joints be well applied. As to pomades and lotions, they should be rejected entirely, because they are wholly inactive.

M. Netter has used the salicylate of methyl in children with very satisfactory results.

M. Rénon has treated three cases of sciatica in which a rapid cure was obtained by the use of the salicylate methyl.

SUMMER DIARRHŒA IN CHILDREN.—Listerine holds its superiority to all other remedies for the first symptoms of summer complaints common to infants and children. Our own experience in its use fully accords with that of I. N. Love, M. D., Professor of Diseases of Children, Marion Sims College of Medicine, as published in the "Dietetic Gazette and Medical Review":

"Every case of bowel trouble has its beginning, and in the very beginning is the time to correct it, and the proper correction of it can be best secured by assisting nature promptly after the discovery, in carrying away and out of the alimentary canal the material which is causing the disturbance.

"There will nearly always in these cases be found fermentative matter, septic matter, and indigestible matter, and this should all be removed. Frequently the first announcement we have of trouble is vomiting and light purging. This is nature's effort to get rid of the trouble, and if we help it in the right direction it will be relieved. If we interrupt nature in her work and at once try to check the secretions and lock up the sewerage of the little one, we will regret it ere long. If the child be seen early enough a mild purgative with cessation from food may be all sufficient.

"We are safe, it matters not at what time we may be called, in administering some antiseptic medication, something which will prevent fermentation and have a destructive effect upon the septic germs more than likely present in the alimentary canal. Happy effects are often secured by the use of Listerine properly diluted; a favorite prescription is the following:

R Lambert's Listerine,
Glycerinum (c p.),
Syr. simpl.,
Aqua cinnamomi, . . . aa Z j.
M. Sig. Teaspoonful every one, two or three hours, as may be indicated."

THE RATIONAL TRAINING OF CHILDREN A PROBLEM IN PEDAGOGICAL PSYCHOLOGY.*

By Prof. Richard C. Schiedt, of Franklin and Marshall College.

Original endowment and proper training in early years must decide upon the sum total of a man's future energies. Early omissions and youthful sins will never be outgrown, any interference with the growth of internal organs can never be fully atoned for.

If, then, character building is the final aim of education, a thorough vitalization of its physical basis is the surest road to it.

The universal demand upon educators to-day ought to be to train the various powers of childhood for only one purpose, namely, to fill them to the highest possible degree with life. I, therefore, advocate the introduction of open air exercises into all the schools—wrestle, climb, swim, play, run, study books and nature only for the purpose of enlarging the vital energies of the being so as to bring it into perfect harmony with the environment in which we live.

How is this end to be attained?

First of all let us abolish afternoon instruction. No matter how vigorous the nervous system may be the brain ought not to be taxed while in the process of growth while digestion is going on. Under unfavorable external conditions abnormal fatigue will prevail throughout the whole afternoon, and in the course of time the brain will become unfit for mental work. Afternoon instruction is, therefore, absolutely unhygienic. Teachers are unanimous in pronouncing afternoon mental work a failure in the majority of cases. One long morning session, with a number of recesses, ought to suffice. Let that instruction be rational; let it largely be object teaching. Do not overfeed children with grammar, which presupposes mastery of speech and the power of developed thought. The brain cells required for such work are

*Paper read at the recent meeting of the Associated Health Authorities in Lancaster, Pa.

as yet but imperfectly developed, and the natural result is a mechanical memorizing, resembling the training of a parrot.

How different the effect of the introduction of the various mechanical arts. They appeal at once to the various organs of sense, and through them to the intellect. An observing teacher will recognize here especially the fundamental strength as well as the fundamental defects in the organization of a child, and, according to these, children ought to be classified for the afternoon exercises.

For this purpose every city ought to be provided with large public playgrounds, and every school house should be joined by a large roof-covered area, equipped with the most important apparatus necessary for physical training for both summer and winter. The authorities ought to see to it as much as possible that each child is given the opportunity to develop its individual inclinations, for in the nature of the case, and necessarily so, class room work has a leveling tendency; its laws are those of a liberal, sometimes even an illiberal, despotism. A child becomes one of a dozen and nothing more, and the only virtue practiced is that of obedience, which should be acquired at home.

On the playground the development of individuality ought to be given a chance, but always under the control of the wiser parent or teacher. Abnormal fatigue must be guarded against there as well as in the class room.

The symptoms of abnormal fatigue are those of poisoning. Rauke injected blood from a fatigued dog into a perfectly fresh animal, which in a few moments became exhausted. This poison is the accumulation of the products of destructive metabolism and acts like a toxin, penetrating the whole body; when the muscles of the legs are abnormally exercised, those of the arms become fatigued; finally the brain is attacked and symptoms of excitement are produced which eventually may lead to death. It is absolutely absurd to claim that football players are capable of mental work after an hour's hard practice.

I would classify physical exercises into muscular, cutaneous and respiratory, and group the children according to the important needs of their internal organization.

We may say that under normal conditions the exercise of the muscles is first in importance for the development of vital forces. The nervous influence brought to bear upon the muscle cells by virtue of the individual will power liberates a host of forces, by

far exceeding those produced during a period of rest. With every muscular vibration a stimulus, resulting from the explosive increase of molecular motions in the muscle cells, is carried to the nerve centres and produces enlarged nervous energies. Thus oxidation increases and the temperature of the blood rises, creating ever fresh stimuli. The skin absorbs a larger quantity of blood, thus producing hunger and aiding digestion; its glands become more active, the centres of respiration and the pulsations of the heart are stirred to greater exertion, which lasts until the muscular stimulus had faded away again and the temperature has returned to its normal condition; while the vital co-operative stimuli and metabolic processes resume their ordinary functional activity.

A larger opportunity, however, for the maintenance and increase of health in its widest sense is found in the proper treatment of the skin, inasmuch as its millions of nerve terminations, affected by every change of temperature, make it pre-eminently the seat of nervous activity.

The wholesome effect of a cold shower bath is universally acknowledged. The particularly intimate connection between the nerve ends with the skin and the centres of respiration invites deep inhalations, and compels the proper activity of the heart. The same wholesome influence makes itself felt in all the excretory organs. External water applications produce, first of all, a change in the distribution of the blood through the skin, and, secondarily, in the internal organs, acting at the same time as a stimulus for the cells, while the changed temperature of skin and blood modifies the process of oxidation. A warm bath has a quieting influence because it is a moderate conductor of heat; that is, it lessens the molecular motion within the cells, and causes a decrease of oxidation. A cold shower bath induces the contraction of the blood vessels of the skin and a diminution in the flow of blood, while the internal organs are at the same time taxed to their full capacity; the internal temperature increases, and with it oxidation and metabolism. A prolongation of the cold application, that is, a cold bath, lowers the temperature of the external body to such a degree that only an equivalent amount of muscular activity can compensate for it. The mere shower bath, therefore, increases the internal heat and stimulates the nervous system to increased activity, while the river or ocean bath offers splendid opportunities for physical exercise in summer when the

intense heat of the atmosphere so much depresses the general vitality.

As a matter of course all training has its final limits for every individual child according to the endowment potentially contained in the germ. These limits suggest different methods for different individuals. Since the organs of respiration are immediately and constantly under the influence of the will, the best exercise for delicate constitutions is that of regular methodical breathing, so strongly advocated by the Ralston system. In its widest sense it includes reading aloud, elocutionary exercises, and especially singing, which is often wrongly classified among the exercise of the chest.

Primarily, however, all these exercises ought to be preceded by teaching a child to breathe exclusively through the nose, and not through the mouth. Chronic catarrh is one of the prevalent troubles of our age. Obstructions to the passage of air through the nose are frequent during the years of childhood; the mucous membrane is swollen, and polyps and other irregularities arise. Dr. W. F. Chappell, New York, found among 2,000 children 61 per cent. with abnormal conditions of nose and throat.

In the evolution of animal life the nose appears simultaneously with the lungs, indicating that it is the proper organ through which air should be carried to the lungs. This is further evidenced by the facts that the nose heats the inspired air, that it provides water vapor for the same and that it purifies it from dust and other substances which injure health. This is, however, not the sum total of nasal properties. It is closely connected with the organs of smell, of sight, of hearing and of taste; further, with the organs of respiration and digestion, inasmuch as substances passing from nose to mouth may be swallowed.

As a matter of course the external temperature of the air is always increased to that of the heat of the body before reaching the throat. It cannot, therefore, exercise a chilling influence upon the mucous membrane, thus performing a work which cannot at all be performed by the mouth.

Daily practice in nose respiration leads to its unconscious performance. It will prevent the contraction of colds, its water vapors will keep the membrane constantly moist and their ciliated epithelium will serve as a dust-filter, as may be experienced at any time when the air is filled with dust or smoke.

Seventy-five per cent. of all known bacteria and 80 per cent. of those living in the air have been found in the mucous of the nose

and which is poison to them. It has further been proven that the secondary nasal cavities are in a more or less close connection with the brain; numerous minute lymphatic canals open beneath the membranes lining the nose and its secondary cavities. The liquid excretions of the brain escape through these channels into the atmosphere by evaporation, constituting the chief source for the moisture of the nose.

Accordingly, the nose represents a system of cavities which may be looked upon as the respiratory system of the brain. Therefore a well regulated ventilation of this system of cavities is of the utmost importance for the maintenance of the functional ability of the brain. The teacher's mission is of inestimable value in this respect, especially among children coming from neglected homes, and in districts far removed from the centres of civilization. An examination of the nasal passages is, under such circumstances, the teacher's prime duty. Children suffering from frequent colds ought especially to be watched. Colds are the chief impediments in nasal breathing, and, furthermore, they lead to the spread of contagious diseases, because the infected membrane becomes the very hearth of all sorts of troubles. Tonsilitis, diphtheria, inflammation of eyes, ears and cerebral membrane, as well as skin diseases, often occur among children with chronic colds in the head. Two-thirds of all our eye and ear troubles, and even consumption, are the result of chronic colds in the head. The ciliated epithelium of the membrane becomes pavement epithelium, the shrinking process begins extending to the deeper parts of the tissues down to the very bones, until the nasal mucous membrane becomes forever incapable of performing its work as guardian of health.

Impeded and wrong breathing prevents the development of the lungs, especially of its apices, while the continued breathing of impure air produces diseased lungs.

If a child is exclusively breathing through the mouth, the apices of the lungs are not at all called into action. Such children have a narrow, flat, sunken chest, high shoulders and a curved spine, and, since the air they breathe is necessarily dry, cold and impure, laryngeal and bronchial catarrh, and even tuberculosis, are the natural consequences.

If only one side of the nasal passages is developed a lateral curvature of the vertebral column shows itself in the course of time, which can easily be remedied by a removal of the nasal impediment.

Another fatal consequence is the displacement of the palate, which assumes a boat shaped form, instead of that of a flattened arch; the space for the development of the teeth becomes insufficient, they become imbricated and prevent their proper use and cleaning, thus aiding in the development of bacteria and of decay.

Again, the constant disiccation of the mucous membrane produces atrophy of the senses of smell and taste and causes paralysis of the most sensitive nerve ends, and with it a disturbance in proper enunciation.

No wonder, then, that the close relation between the nasal passages and brain should cause an interference of the latter's development under such abnormal conditions. The insufficient admission of oxygenated blood seriously disturbs the metabolism of the brain, prevents evaporation and impedes cranial growth, and, with it, the development of the child's psychic life, for the health of the latter largely depends upon the vigor of the various organs of sense. Their disturbance impairs whole categories of vital forces necessary for the structure of the child's psychic life. The formation of concepts and judgments, the sense of delicate distinctions in color, touch and temperature may become well nigh impossible.

In my observation of children I invariably discovered, back of the anxious expression of the face and the incapacity for thought, abnormal respiratory conditions due to neglected cases of catarrh, while others with physical impediments in their speech due to false respiration showed an excellent memory for concrete phenomena, but never for abstract. Their statements were usually confused because they lacked the ability for logical thought.

Surely there is plenty of room for the direction of a child's psychic life through the proper training of the organs of sense. Neglected children will not only become physically weak, but also morally; their interest, their energy, their will power will atrophy, and with them their character.

Teachers therefore ought to receive a very exhaustive course of instruction in physiology, hygiene, chemistry, etc., at the expense of much of our literary ballast.

In conclusion, let me repeat the salient points of this paper in order to sum up the gist of my argument.

First. The esthesiometer is the proper instrument for the measurement of fatigue.

Second. Tentative experiments with American boys prove a

superior normal strength of their mental vigor under favorable conditions of atmosphere.

Third. Unfavorable conditions of atmosphere show an unusually large percentage of abnormal fatigue of the nervous system.

Fourth. This condition is due to the utter lack of systematic open-air exercises.

Fifth. Such exercises for children are a prime necessity because the foundations of a healthy and useful life are laid between the 7tth and 15th years, but never afterward.

Sixth. Training of all the functions of the physical organism should precede instruction, because it will develop the necessary mental strength.

Seventh. Children should be classified according to their individual characteristics, and stress should be laid upon the development of their weakest organs, in such a way, however, as to leave plenty of room for individualization.

Eighth. Such exercises should take place every afternoon and should be continued until the limit of normal fatigue is reached.

Ninth. The exercises should be grouped into muscular, cutaneous and respiratory.

Tenth. All these exercises should be essentially exercises of the nervous system, to lead to a proper development of character.

America has the wealth, the opportunity and the ability to show to the rest of the world that the men who fought at Manila represent the strongest nation on earth, physically, mentally and spiritually. May she fulfil her glorious mission.

LIMITATION OF DEBATE.—We recollect of having some time read or heard of a laughable incident that occurred in the House of Commons. An Irish member, having risen, he was assailed by loud cries of "Spoke! Spoke!" meaning, that having spoken once already, he had no right to do it a second time. He had, evidently, a second speech struggling in his breast for an introduction into the world, when seeing, after remaining for some time standing, that there was not the slightest chance of being suffered to deliver a sentence of it, he observed, with imperturbable gravity, and in a rich Tipperary brogue, "If honorable gintlemin suppose that I was going to spake again, they are quite mistaken. I merely rose for the purpose of saying that I had nothing more to say on the subject."

THE MEDALS, JETONS AND TOKENS ILLUSTRATIVE OF SANITATION.*

By Dr. H. R. Storer, Newport, R. I.

X. III. *Vaccination*

England.

Dr. Edward Jenner (1749-1823), of Berkeley.

In addition to Nos. 926-935, and 2271, there are:

2546. Obverse. Bust, clothed, to left. Upon truncation: (T. R.) Poole 1809 No inscription. Reverse blank. Storer, *loc. cit.*, April, 1895, No. 880; *Ibid.*, Memorials of Edward Jenner, 1896, p. 5, No. 2. In library of Royal Medical and Chirurgical Society of London. Communicated to me by Dr. F. P. Weber.

2547. Obverse. Bust. Beneath: Barre Inscription: Napoleon III. Empereur Reverse. Bust, facing. At sides, a draped and a nude female, with laurel wreath. Beneath, a cow. Inscription: Edward Jenner Upon rim: Comite De Vaccine De La Seine Inf. Silver. 26.41mm. By Hamel. Pfeiffer, Zur Jennerfeier des 14 Mai, 1896, Medaillen, etc., p. 6, No. 415c; Storer, *loc. cit.*, July, 1896, No. 1814; *Ibid.*, Memorials of Edward Jenner, p. 6, No. 6.

2548. Obverse. As that of No. 934. Reverse also, save that inscription is absent. Silver. 22.36mm. Pfeiffer, *loc. cit.*, p. 7, No. 417a; Storer, *loc. cit.*, July, 1896, No. 1015; *Ibid.*, Memorials etc., p. 7, No. 9.

2549. Obverse. Bust, to right. Beneath: Fenwick Sc. F. Birm.m Inscription: Edward Jenner, M. D., L.L. D. (*sic*) F.R.S. &c. | Born 17 May 1749. Died 26 Jan. 1823. Berkeley, Glostersh: Reverse. Within laurel wreath: May 14th 1896 | In Commemoration Of | The Centenary Of | Dr. Edward Jenner's | First & Successful | Experiment | In Vaccination | May 14th 1796 Silver. 23.38mm. Brettauer, Mittheilungen des Clubs der Münz und Medaillen Freunde in Wien, May, 1896, p. 55; Storer, *loc cit.*, July, 1896, No. 1016; *Ibid.*, Memorials, etc., p.

* Continued from page 57.

5, No. 3. Struck at Bristol, England, by Mr. Moeckler, to facilitate the purchase of his collection of Jenner relics for University College, Bristol.

2550. Obverse. Bust, with queue, to left. Inscription: Vaccination, May 14th | 1796-1896 | . Jenner. Reverse. Within circle, the staff of Æsculapius, upright. Inscription: Medical Society Of The County Of Kings ¦ (rosette) Silver (but four struck), bronze. 22.37mm. Monatsblatt der num. Gesellschaft in Wien, Dec., 1896, p. 449; Brooklyn Medical Journal, July, 1896, p. 461, fig.; Storer, *loc. cit*, July, 1896, No. 1017; *Ibid.*, Memorials, etc., p. 8, No. 17; Scientific American, May 30, 1896, p. 344, fig. of obverse. It is to be regretted that the locality, Brooklyn, N. Y., should have been omitted while reproducing upon the reverse the seal of the society. In my collection, the gift of Dr. J. H. Hunt, of Brooklyn.

A Centennial medal, of which I have not as yet obtained the description, has also been struck at St. Petersburg, and another still is proposed by the Epidemiological Society of London.

France.

2551. As No. 963 (P. and R. No. 404), but the F absent after engraver's name on obverse. Silver. 21.32mm. Pfeiffer, *loc. cit.*, p. 5, No. 404. In the Government collection and my own.

2552. Obverse. Front of a temple. At left, a torch; at right, a caduceus. Exergue: 1814. Reverse as preceding, but branches overlapping above. 21.32mm. Tresor de num., VII, pl. LXI, No. 11.

2553. Obverse. Head, to left. Beneath: Gayrard F. Inscription: Louis XVIII Roi De France Et De Navarre. Reverse as No. 962 (P. and R. 403). The branches touch above; a dot after M, and no dash below date. Silver. 20.31mm. In the Government collection and my own.

2554. Obverse. Head of Charles X, to left. Reverse. Laurel wreath. 23.35mm. Pfeiffer, *loc. cit.*, p. 6, No. 410a.

2555. Obverse. (Republique. 1848.) Reverse. Société Nationale De Vaccine. Bronze. 26.41mm. Baer Cat., Jan., 1898, No. 96.

2556. As No. 971 (P. and R. 412), but upon reverse engraver's name away from bust, and in large letters. Silver. 26.40mm. In my collection.

2557. Obverse as No. 928 (P. and R. 400). Reverse. Within wreath of flowers and fruit: A Mr | Petit-Mengin | Dctr. Médecin | A Remiremont | (Vosges) | 1848 (struck). Inscription: Ministere De L'Agriculture Et De Commerce. Silver. 26.40mm. In the Government collection.

2558. As preceding, but in field: Mr. | Fettu | Doctr. Médecin | A Bellême | Orne | 1868. Upon rim: Argent Silver. 26.41mm. Pfeiffer, *loc. cit.*, p. 6, No. 415a.

2559. As preceding, but after Commerce: Et Des Travaux Publiques. In field: A Mr. | Lalande | Off. De Santé | A. Périgueux | (Dordogne) | 1860. Silver. 26.41mm. *Ibid.*, No. 415b.

2560. As preceding, save Publics. In field of reverse: A M. Sigalas, Docteur Medecin A Marmande. Lot - Et - Garonne. 1851. Silver. 26.41mm. Baer Cat., Jan., 1898, No. 97.

2561. As preceding, save: A M. Delaporte, Docteur Médecin A Vimontiers . Orne. 1853. Silver. 26.41mm. *Ibid.*, No. 98.

See also under England, Jenner.

Italy.

Dr. Aloisio Sacco (1769-1836), of Milan.

Besides Nos. 950-1, there is:

2562. As No. 951, but without engraver's initials on obverse, and its inscription nearer the edge. Bronze. 32.50mm. In my collection.

2563. As the last, save in exergue of obverse, III instead of VIII. Bronze. 32.50mm. In the Government collection. Dep. Surg. Gen. Huntington has kindly sent me impressions.

2564. Obverse. Head, to right. Upon neck: C. Moscetti Inscription: Humbertus. I. - Italiae. Rex. Reverse. Laurel and oak branches united by ribbon. Above, between their tips, a star. Inscription as in No. 2010, but divided by triangular points. Exergue: *MDCCCLXXVIII* Bronze. 23.37mm. Pfeiffer, *loc. cit.*, p. 8, No. 427b. I have impressions from Dr. Brettauer.

X, IV. *Cholera.*

Mexico.

2565. Obverse. Within a circle broken at the base by olive twigs divided by a star: *|Santo Dios | Santo Fuerte *| Santo

Inmortal | Libanos S. De |*Todo Mal*|*A. 1833*. Reverse. Extending down from a circle broken below by two stars, a Latin cross studded by stars. At sides of its base, olive twigs. Bronze. 24.39mm. Edges chased. Storer, *loc. cit.*, April, 1898, No. 1243. I have impressions from the late Dr. J. W. Bastow,* who was struck by its difference in general character from the usual Mexican religious medals.

HOLLAND.

Amsterdam, 1832.

2566. As No. 1012 (P. and R. 448), save after Aan upon reverse: *-*-|* Silver. 19.28mm. In my collection.

BELGIUM.

National.

2567. Obverse. Oak wreathed head, to right. Inscription: Leopold Premier Roi Des Belges. Exergue: two stars. Reverse. Beneath a laurel wreath tied by ribbon: Reconnaisance | Publique | (a thunderbolt) Inscription: Services Rendus Pendant Le Cholera | *1832* Silver. 14.21mm. Guioth, No. 154; Piot, Coins, etc., p. 271, No. 1030. In my collection.

Bruges, 1866.

2568. Obverse. A female, seated, to left; in right hand a laurel wreath, and on left the armorial shield of the city. Exergue: F. de Hondt F. Reverse. Crossed branches of laurel. Voor | Dienst Bewesen | Gedurende | De Cholera Ziekte | 1866 | Het Danbare Brugge 26.42mm. Piot, *loc. cit.*, p. 340, No. 1204.

Brussels, 1849.

In addition to Nos. 996 and 2014:

2569. Obverse. Head of the dead burgomaster, to left, recumbent upon a pillow. Behind, at right of base: Jouvenel Inscription: Ch. De Brouckere Bourgmest. De Bruxelles | Né En 1796. Reverse. An upright label, upon which: Intelligence | Activité | Devouement | Aux Interêts | Publics |x| 20 Avril 1860 | Deuil Général At left, upright, the staff of Æsculapius; at right, an inverted torch. Bronze. 29.46mm. In my collection.

2570. As No. 1019 (P and R. No. 477), Jules Anspach, save on reverse: V.·. M.·. Ench.·. Off.·. Dign.·. Prim.·. Bronze. Schulman Cat., 6 Oct., 1896, No. 720.

* Immediately after receiving the above, I had information of Dr. Bastow's death, at the City of Mexico. For a number of years he had most generously assisted me regarding the medical medals of Mexico, and I have now to speak of him with the same regret as of Dr. Wm. Lee of Washington and Dr. Geo. J. Fisher of Sing Sing, my earlier co-laborers.

The following mortuary medals of Anspach doubtless also refer to his services in arresting the cholera:

2571. Obverse. Within a circle of dots, St. Michael slaying the dragon. Beneath. Wurden. Reverse. *| 29 Mai 1879 | Bruxelles En Deuil | Pleure Son Bourg^mre | Jules Anspach Beneath, crossed torches united by a wreath. Revue belge de num., XXXVI, 1880, pl. XXIV, No. 6; Coster, Jetons hist., p. 263, No. 1230. In my collection.

2572. Obverse. Jules Victor-Anspach | Ne | A Bruxelles | Le 20 Juillet 1829 | Décéde A Linthout | Le 19 Mai | 18 (St. Michael with the dragon) 79 |* Bourgmestre De Bruxelles * Reverse. Elu | Conseiller Communal | (etc., in ten lines.) Bronze. 22.30mm. Revue belge de num., XXXVI, 1880, pl. XXIV, fig. 4; Coster, *loc. cit.*, p. 263, No. 1232. In my collection.

Laeken.

2573. Obverse. The city arms. Commune De Laeken. Reverse. Dévouement et Humanité Choléra 1866 Bronze, decorated with gilt. 20.27mm. Communicated by Mr. C. Dupriez, of Brussels.

FRANCE.

Baron Dr. Guillaume Dupuytren (1778-1835), of Paris.

2574. Besides Nos. 1002-03, there is a German token of a French friseur at Berlin, which bears Dupuytren's name in connection with a dressing for the hair. Brass. Neumann, No. 31482.

Baron Dr. Jean Dominique de Larrey (1776-1842), of Paris.

Besides No. 1004, there is:

2575. Obverse. Head, to right. Beneath: P. J. David 1831 Inscription: D. J. Larrey Reverse blank, save signature of the bronze founder, L. Richard. Bronze. 98.155mm. Cast. Jouin, *loc. cit*, p. 237, No. 410. In the Government and Weber collections.

There are additional general cholera medals.

National.

2576. Obverse. Head of liberty, to left. H. Ponscarme. Inscription: Republique Française. Reverse. Serpent drinking from cup over tablet, upon which: J. Martin | MDCCCLXXXV. (Struck.) Inscription: Ministère Du Commerce Exergue: Epidemies. Silver. 17.27mm. With ring and ribbon. In the Government collection.

2577. Obverse. Head of liberty, winged, to left. Beneath: E. F. Inscription: Republique * Française Reverse: Upon a quadrangular base, with palm branch behind, a chalice entwined by a serpent. Inscription: Ministère De - L'Interieur Exergue: Epidemies Silver. 8.13mm. With loop and ring. In my collection.

2578. Obverse as preceding. Reverse. Ministère De L'Agriculture Et Du Commerce. A. M. Danjan Adj^{t} Au Maire Du II^{e} Arr^{t} Paris En Temoignage De Son Dévouement. Choléra 1849 . Silver. 32.50mm. Baer Cat., Jan., 1898, No. 100.

2579. Obverse as that of No. 2021 (Head of Napoleon III, Caque F.). Reverse as that, save: Au Dur | Thomas. | Recompense | Cholera | 1854 (struck). Silver. 20.32mm. I have impressions from Mr. J. H. Valpey, of Detroit.

2580. Obverse as preceding, save: F. Chaband. Reverse as preceding, save: A M^{r} | Quesnay | Recompense | Cholera | 1854 (struck). Upon rim: Cuivre, preceded by the mint mark, a hand. Bronze. 36.56mm. In the Government collection.

2581. As preceding, save: Au Dur Lepine | (etc.) | (struck) Bronze. 36.56mm. In the Government collection.

2582. Obverse. As preceding, save head laureated, and Barre. Reverse, save in field, as No. 2021. There is Le before Ministère, and the date is 1866. Gold, silver, bronze. 33.51mm. Communicated to me by Dr. H. Fournie, of Amiens.

2583. Obverse. (Napoleon III.) Reverse. A M. Bernadini Antoine. M. Chirurgien De La Marine De 3^{e} Classe. Epidemies Choleriques 1865. Silver. 20.31mm. Baer Cat., Jan., 1898, No. 101.

Amiens, 1866.

2584. Obverse. Diademed head, to left. Beneath: Dantzell F. Inscription: A S. M. L'Imperatrice Eugenie - La Ville D'Amiens Reconnaisante Reverse. The Empress at the bedside of a dying man. At her feet a kneeling girl. A Sister of Charity, with folded hands, near whom a table with drinking cup. Inscription: Epidemie Cholérique De 1866. Visite Du 4 Juillet Exergue: Dantzell - F. 1867 Gold (one struck), silver (three struck), bronze (ninety-six struck). 43.68mm. Edges beaded. In my collection, the gift of Dr. Fournie, of Amiens.

(1019a.) I am now enabled to give the description of this medal. Obverse. The city arms. Inscription: *Ville D'Amiens* Reverse. A wreath of oak, laurel and ivy leaves. Within, name

of recipient, engraved. Bronze. 32.50mm. Distributed by the Société de Prévoyance of Amiens. In my collection, the gift of Dr. Fournie.

Cambrai, 1832.

2585. Obverse. Louis Philippe, etc. Reverse. Les Pauvres De Cambrai A M. Ct. Dejardin Pour Son Devouement Pendant Le Choléra Bronze. 42.67mm. Baer Cat., Paris, Jan., 1897, No. 142.

Paris, 1865.

2586. Obverse. The Emperor, to right, gives his hand to a patient in bed, behind which, a physician. At left, a Sister of Charity. Above: Fides-Spes Upon base, at left: E. Laurent Sculp; at right: A Borrel Incis Inscription: Visite De L'Empereur * (a crown); above: Caritas * Augusta * Napoleon III A L'Hôtel Dieu Exergue: Epidemie De MDCCCLXV Reverse. The Empress, to left, gives her hand to a patient in bed, behind which a Sister of Charity. At left, another Sister. Above: Miserorum | Soror Upon base, at left: E. Laurent Sculp.; at right: A. Borrel Incis. Inscription: Visite de L'Imperatrice * (a crown); above: Caritas * Augusta * - Eugénie A L'Hospice Beaujon Exergue: Epidémie De MDCCCLXV Bronze. 48.75 mm. In the Brettauer and Weber collections.

(1028.) With regard to this, the "miraculous" medal (The Virgin, 1830), a work has been written by the Abbé Aladel, C.M., which is abbreviated by Rev. A. A. Lambing, in his Sacramentals of the Holy Catholic Church, pp. 191, 200. By them no reference is made to its connection with the cholera epidemic, but the fact that it was struck during its height under the direction of Mgr. de Quelen, Archbishop of Paris, whose own personal medal of the cholera of 1832 has been already described (No. 1025), added to the tendency of modern ecclesiastical writers to speak in parables, increases the probability of the derivation that has been given.

GERMANY.

Hamburg, 1892.

2587. Obverse. Within entwined oak and thorns, the city arms, very elaborate. Beneath, upon a scroll: Das Dankbare | Hamburg | 1892 Reverse. Hercules, nude, clubbing the Hydra, and another assisting him with a lighted torch. Behind, a laurel branch. Inscription: Den * Helfern - In Der * Not(h) Exer-

gue: A. Vogel. sc. I. V. L. Silver, bronze. 44.68mm. In the Government collection and my own.

ITALY.

National, 1835.

2588. Obverse. Bust of Carlo Alberto, to right. Reverse. (Cholera of 1835.) Bronze. 22.35mm. Morchio & Majer Cat., 20 May, 1896, No. 5972.

Leghorn, 1893.

2589. Obverse. Cholera | 1893 Reverse. Ven. A. C. (Archiconfraternita) | Della | Misericordia | Di | Livorno.- Copper. 25.40mm. In the Government collection.

Naples, 1894.

2590. Obverse. The King and Archbishop of Naples, clasping hands. Inscription: A Umberto I Re D'Italia E Guglielmo Sanfelice Arciv. Di Napoli Exergue: A Sirletti P. F. Reverse. The hospital, with Vesuvius to right. Exergue: Campo. Di. Gara. Caritatevole | Tra. Un. Re. E. Un. Cardinale | Nel. M.DCCC.LXXXIV | Lo. Spedale. Della | Conocchia Bronze. 44.70mm. In the Government and Brettauer collections.

Do. 1885-6.

2591. Obverse. Head, to right. Upon shoulder: C. Moscetti Inscription: Umberto I - Re D'Italia Reverse. Crossed laurel and oak branches. Inscription: Ai Benemeriti Della Salute Pubblica Exergue: A star. Gold, silver. 24.37mm. With ring, and ribbon of blue and black. I have impressions from Dr. Brettauer.

Pesaro, 1855.

2592. Medal by the Commune to Giacomo Asiari (1795—). Gold. Boston Medical and Surg. Journal, Sept., 1895.

RUSSIA.

(1062.) Since first learning of this piece I have been in doubt as to its locality. Dep. Surg. Gen. Huntington, U. S. A., has kindly given me the following description:

A plain oval piece of copper, 28.40mm., with perforation for suspension. Without device or inscription, save that on one side is written in ink: Amulet | gegen die | cholera | 1831. It is not given by Pfeiffer in his Die deutschen Pestamulete. In the Government collection.

X, V. *Yellow Fever.*

MEXICO.

San Blas, Territory of Tepic (Pacific Coast), 1883.

2593. Obverse. Within a circle, and between crossed laurel branches, an irradiated mirror, entwined by two serpents. Inscription: El Municipio Del Puerto De S. Blas | * Dr. Federico Pedrera * Reverse. Within circle, a pelican feeding her young. Inscription: Salvo A. Les Atacàdos | * Fiebre Amarilla En 1883* Gold. 16.26mm. Edges milled. Storer, *loc cit.*, April, 1898, No. 1244. I have drawings from the late Dr. J. W. Bastow. The recipient, Dr. Pedrera, is now a resident of Merida, Yucatan.

SOUTH AMERICA.

Brazil.

I am now able to give descriptions of the following, through the kindness of Mr. Julius Meili, of Zurich:

Campinas, 1889.

(2032.) Obverse. Within circle: Ao Dr | Jose Maria | Teixeira | -.- Inscription: Homenagem De Gratidao | (rosette) Do Povo Campineiro (rosette) Reverse. Within a wreath of roses, three falling tears. Inscription: Epidemia De 1889 | *Em Campinas* 19.30mm. Storer, *loc. cit.*, April, 1895, No. 282.

2594-2619. As the following are wholly struck and not engraved, they have to be separately enumerated. They are all like the preceding, save the central names on obverse. Preceded by Ao: Dr. Angelo Simoês; Dr. Antonio Alves Do Banho; Dr. Braulio Gomes; Dr. Caetano Monforte; Dr. Claro M. Homem De Mello; Dr. Clemente Ferreira; Dr. Eduardo Guimarâes; Dr. Eufrasio José Da Cunha; Dr. Fernando De Barros; Dr. Francisco Corrêa Sutra; Dr. Francisco C. Perreira De Barros; Dr. Francisco M. De Aranjo Goés; Dr. Germano Melchert; Dr. J. B. M. Azevedo Corrêa; Dr. Joâo De Deus Da Cunha Pinto; Dr. Joâo G. Costa Aquiar; Dr. Luiz Manoel Pinto Nelto; Dr. Manoel De Assis Vieira Bueno; Dr. Valentin J. Da S. Lopes. Preceded by A: Alberto De Castro Menezes; Caetano De Faria Castro; Horacio Marcoudes Romeiro; Joaquim T. Soares Da Camara; Luiz Antonio Barboza; Luiz Pedro Barboza; Vito Pacheco Leâo. *Ibid.*, Nos. 824-49.

Paranagua, 1889.

(2033.) Obverse. Within circle: Ao Dr. Jose Justino | De

Mello | Inspector De | Saude Do Porto | - Inscription: Camara Municipal | *De Paranagua* Reverse. Within beaded circle: Honra | -Ao- | Merito Inscription: Sessao Solemne | * Junho 23 De 1889 * 19.30mm. *Ibid.*, No. 283.

2620. Obverse. Within circle: Ao Dr. Joao Evangelista | Espindola | Medico | Municipal | - Inscription: Camara Municipal De Paranagua* Reverse as preceding. *Ibid.*, No. 850.

In view of the repute of Dr. Domingos Freire, of Rio de Janeiro, in connection with yellow fever, the following should also be given:

2621. Obverse. Within branches of opuntia (prickly pear) and laurel, surmounted by radiant star: Ao Dr. | Domingos | Freire -*- Inscription: A Mocidade Academica 1887. | -*- Reverse. Conferida | Em | Sessao Solemne | - A - 7 De Agosto | De | 1887 | -o- 34.54mm. Edges of reverse chased. *Ibid.*, No. 820.

X, VIII. *Intermittent Fever.*

Sweden.

There are two additional medals of Linnaeus that might be mentioned.

2622. Obverse. Bust, to right. Lea Ahlborn Imit. Liungberger. Inscription: Carolus V. Linné Sueciae Et Literarum Decus. Reverse. Within a wreath of flowers: Natus | MDCCVII | Denatus | MDCCLXXVIII. Legend: Floret Per Secula Fama. Bronze. 36.56mm. In the Government collection.

2623. Obverse. Ceres, enthroned, to right, with palm and wreaths. Reverse. Within a circle: Exposition | De La | Ste Royale Linnéenne | De | Bruxelles Above, a serpent and patera. Below, a wheeled plough. At each side, a bee-hive. Inscription: Royaume De Belgique | Fêtes Nationales De 1886 Bronze, gilt. 32.50mm. In my collection.

X, X. *Scarlet Fever.*

Dr. S. C. F. Hahnemann (1755-1843), of Meissen, Germany.

Besides Nos. 1130-35 and 2036, there is the following:

The United States.

2624. Obverse. As that of No. 1135. Reverse. Within a milled circle: Awarded To | |For| Superior Scholarship In-'otion: The Hahnemann Medical College | of Philadelphia

Bronze. 28.44mm. Storer, *loc. cit.*, Oct., 1894, No. 765. In my collection.

X, X.a. *Miliary Fever.* (Sweating Sickness.)

FRANCE.

Draguignan, 1860.

2625. Obverse. Napoleon III. Reverse. A M. Angier Pour Son Dévouement Epidémie De Suette miliaire A Draguignan Bronze. 36.57mm. Baer Cat., Paris, Jan., 1897, No. 143.

X, XII. *Diphtheria* and *Influenza.*

ENGLAND.

Dr. John Fothergill (1712-80), of London.

Besides No. 1136 there is:

2626. Obverse. Bust, to right, with wig and horizontal curls. Beneath: Dr. Fothergill. Reverse blank. Wedgwood. Oval. 55x71. 87x112mm. By Flaxman. Storer, *loc. cit.*, April, 1895, No. 859a. Communicated to me by Mr. A. H. Lyell, of London. Figured in Meteyard, Life of Josiah Wedgwood, 1865, II, p. 7, where, however, the bust is to left, and there is no inscription.

(To be Continued.)

THE PURITANS THOUGHT THAT WATER WAS UNWHOLESOME.

Our Puritan ancestors hardly imagined that water was either a healthful or a sufficient beverage, if we may judge from some paragraphs in their letters and diaries. There are hints that the Indians had learned how to make an alcoholic drink from corn, and in 1584 Raleigh had found that those as far south as Carolina had learned how to make wine from grapes. Governor Bradford bitterly complains of the hardship of having to drink water, as no beer or wine was to be had. In 1629 an appeal was sent to the Home Company for "ministers" a "patent under seale" that their legal status as colonists might be clear and stable; and also they want "vyne planters," wheat, rye, barley and also "hop rootes." When the answer to this appeal was sent by a ship that was provisioned for three months, it carried "45 tuns of beere," "two casks of Malega and Canarie," "twenty gallons of aqua vitae (brandy), and for cooking, drinking and all only six tuns of

water!" The Rev. Mr. Higginson, the first minister, in writing back a glowing account of the attractions of the country, said his health had been benefited by the fine air, and—"whereas my stomach could only digest and did require such drinks as were both strong and stale, now I can and doe oftentimes drinke New England water verie well."

He regarded this as a remarkable phenomenon, and one Wood, whom we now should call a "promoter," wrote in the "New England Prospect" that the country was well watered, and with a water unlike that to be found in England—"not so sharpe, of a fatty substance and of more jetty color. It is thought that there can be no better water in the world yet dare I not prefer it to good Beere, as some have done. Those that drink it be as healthful, fresh and lustie as they that drink beere."

Total abstainers would say that Mr. Higginson's experience proves that the system does not need alcohol, and if the consequences were not so serious we could all smile at the "promoter's" fear of drinking water. Those hop roots must have flourished, for as early as 1631, the people of the colony had passed a law for putting drunkards in the stocks, and brew-houses multiplied, and an "ale quart of beere" could be bought for a penny. The manufacture of other drinks developed rapidly. Fifty years later, Judge Sewall names ale, beer, mead, metheglin, cider, wine, sillabub, claret, sack-canary, punch, sack-posset and black cherry brandy. Everybody drank cider, which was produced on every farm in abundance. Beside these there was "beveridge," and "swizzle," made from molasses and water, and many kinds of beer, but the grand and universal thing was rum. Ships took corn, pork and lumber to the West Indies and brought back raw sugar and molasses, which, once here, were speedily converted into rum—there was a distillery in every inland town, while those on the coast had scores of them. The significant name "kill-divil" was universally given to it, and it was shipped to the African coast in exchange for slaves. "Flip" and "punch" were made and drunk on all imaginable occasions. Laborers would not work at the harvest, nor builders at the trades, without a liberal allowance of rum.

Large quantities of liquor were consumed when a minister was to be ordained, as is witnessed in many of the parish records still extant. The following record is that of the Town of Beverly, Mass., on an ordination occasion in 1785:

	£	s.	d.
30 Bowles Punch before they went to meeting....	3	0	0
80 people eating in the morning at 16d.....	6	0	0
10 bottles of wine before they went to meeting....	1	10	0
68 dinners at 30d.....	10	4	0
44 bowles punch while at dinner.....	4	8	0
28 bottles wine.....	2	14	0
8 bowles brandy.....	1	2	0
Cherry rum.....	1	10	0
and 6 people drank tea.....	0	0	9

Even at a raising of a meeting house, large stores of intoxicants must be laid in. When the meeting house in Medfield, Mass., was raised, there was provided four barrels beer, twenty-four gallons West Indian rum, thirty gallons New England rum, thirty-five pounds loaf sugar, twenty-five pounds brown sugar, and 465 lemons. A century ago General Washington was engaging a gardener—we quote from the contract, in which it was explicitly stated that he should have "four dollars at Christmas, with which he may be drunk for four days and four nights; two dollars at Easter for the same purpose; two dollars at Whitsuntide, to be drunk for two days; a dram in the morning and a drink of grog at dinner at noon."

Every tavern displayed many decanters of liquor to be drunk with all meals, free, and the flip iron was kept constantly heated in the tavern fire; the sideboard of every private family had a various assortment of liquors, and not to ask a caller to drink was a breach of hospitality; in short, temperance sentiment, as we now know it, did not exist. Here and there a penetrating intellect perceived the widespread, ruinous consequences of alcoholism. Dr. Franklin tried to demonstrate that it did not add to muscular power by bringing down from an upper story two heavy forms, while his less temperate followers could only bring one. He made a list of the names that had been invented to express the condition of inebriety, and named more than thirty—such as "he was fuddled," "he was teed," etc., not one of which was plain "drunk," and none of which arrived at the picturesque descriptiveness of "he has got a jag on;" but Franklin said they all argued that a man was ashamed to be intoxicated.—"Independent."

HIGH HOUSES.

By Rev. Edward Everett Hale, D. D.

In the city of Sybaris, which a friend of mine visited nearly fifty years ago, he found that stair-builders and slave-holders were kept out of the city by the same article in the Constitution. Some ingenious fellow attempted to circumvent the Constitution by introducing elevators. But the guardians of that city, whose business it is to protect the citizens, applied for an injunction at once; and the courts held very rightly that, for the purposes and intent of the Constitution, an elevator would do more injury than a staircase. So the elevators were forbidden, and the people who wanted to build them had to move to Boston. The motto of the city of Sybaris is, "The city is disgraced when the citizen is injured."

The city of Paris is not generally considered a model city in its oversight either of the health or of the morals of its people. But, even in Paris, they have come so far that no one can build there on any avenue, however broad, a building of more than seventy-five feet from the sidewalk to the eaves.

In our usual happy-go-lucky fashion of letting evils pile up until they cure themselves by an earthquake, the people of Boston have thus far failed to make any such provision as even the city of Paris makes. The firemen, who are fine fellows, and have to risk their lives, as a matter of course, that the rest of us may live, have occasionally protested through their chiefs against the erection of buildings so high that you cannot throw a stream of water over them. And, in a half-hearted way, the city has proportioned the height of the building by the width of the street, in grudging answer to this fireman's appeal.

But those of us who have to do with people who live in tenement houses—as, for instance, every doctor and every clergyman has—know that some of their evils do not depend upon the width of the street. You have a little girl of five years old, whom you are very properly compelled to send to school. For her school work alone she must go down to the street twice every day, and return to her home. By a law quite as imperative as any statute,

you are compelled with your wife and children to live eighty feet above the sidewalk. This means that your little girl is compelled to go over a hundred and twenty stairs four times every day. This means physical ruin.

For reasons well known to the proprietors of such property it becomes necessary, as they think, to limit the number of children in each family of their tenants. You may see the permanent order in such houses that no persons need apply for rooms who have more than three children. And, briefly, as every physician of experience knows, life in a tenement house means a bad death rate. So many deaths of children well born into this world which would not have been necessary had not laws, written or unwritten, brought about the erection of dwelling-houses ten or twenty stories high.

The boards of health in our cities have very large powers. It is probably within the range of the powers of any board of health in Massachusetts to say that no tenement house shall contain at any moment more residents than a number fixed in proportion to the square feet of surface occupied. But such provision is left, unfortunately, to the independent action of different boards in different towns. It is asking quite too much, however, of any one board to take action for one city different from what is possible in other towns of the Commonwealth. Here is the reason for going to the legislature to ask for a general law, which for sanitary and moral consideration shall

1. Restrict the height of tenement houses.
2. Restrict the number of occupants for every square foot.

If a ship at sea may not carry more than a thousand passengers for a fortnight, because the surface of her deck is only so many feet, it is absurd to say that the owner of a piece of land on shore of the same size may pile two thousand people or twenty thousand people into the square ship which he builds of iron, with ten or twenty, or, if you please, fifty decks, only eight feet apart, taking his chances of earthquake or of fire.

I say eight feet, because that space between these land decks is required by our present building laws.

I have used the word "tenement house," though I believe "apartment house" is regarded as more fashionable. The popular distinction is that the apartment house has an elevator, and the tenement house has none. But the elevator brings with it its dangers as well as its conveniences.—"The Christian Register."

EDITOR'S TABLE.

SANITARIAN, AUGUST, 1898.

☞All correspondence and exchanges, and all publications for review, should be addressed to the Editor, Dr. A. N. Bell, Brooklyn, N. Y.

MICROBES.

Dr. E. E. Klein, lecturer on physiology at the St. Bartholomew's Hospital, London, in a recent lecture on "Achievements of Bacteriology," quoted some remarkable statistics concerning the microbe and its singularities. Its dimensions were so insignificant, he said, that a postage stamp would accommodate 500,000,000 of the species which wrought so much destruction at Maidstone. Their fecundity was prodigious, so much so that if fifteen drops of water polluted with bacteria were allowed to fall into a cup of broth the germ population would have increased in twenty-four hours to 80,000,000. So profound had been the researches of the scientists who made this matter a special study, that not only had the bacteria associated with various diseases been discovered—photographs of the different kinds were shown on the screen—but their weight had been estimated. As an instance of this fact Dr. Klein said that it would take 122,000,000 specimens of *Bacillus typhi abdominalis* to weigh a gramme. So penetrating had been the studies of the bacteriologist that he could now detect one part of sewage even if it was contained in as many as 500,000 parts of water.

As a further illustration of their minuteness and strength, we are reminded of an incident of our studies of *fungi* in the tropics, many years ago ("Knowledge of Living Things," 1860), when we suspected them as being the cause of malarial fever. *In re* a thick and dense-shelled black walnut was found in the mess-locker riven apart, and the kernel in each half was naught else but mould, a species of fungi, the particles wholly indistinguishable—as the finest dust. How did they get through the shell—apparently solid? The first of them, through orifices, doubtless, but so small

as to be beyond our power of discovery; and they had there feasted on the kernel and so multiplied in numbers that by pressure they had burst the shell, to be dispersed in countless myriads for the weal or the woe of whatever they seized upon.

Of like nature, and belonging to the same great natural family of microbes, is the mushroom, the rapidity of whose growth is proverbial; while the whole period of existence of some of the smaller species is but a few minutes. There are species which under congenial conditions in one night multiply and grow from an invisible single cell to the size of the double fist. And such an one consists of not less than four thousand millions of germs, a number which, if counted at the rate of three hundred per minute, it would take one person night and day three hundred years to count. A square mile contains over three million square yards, or twenty-seven million square feet, so that a single fungus may present at evening a simple cell, invisible to the unaided eye, and yet before morning place nearly eighteen hundred such cells in every square foot of a square mile!

Of bacteria in general, they are all vegetable organisms and belong to the natural order of fungi, than which there is no better example than the puff ball, which is an aggregate of them, but, as observed singly, are the smallest things discernible by the highest power of the microscope. Their office in the rôle of living things is, in general, beneficent, but as in the higher orders of vegetable organisms, some are poisonous, and these are the "pathogenic microbes"—disease germs.

Of the life-history of disease germs there is nothing known beyond their present aspect. No evolutionist has yet instituted inquiry into their primitive form—if they were ever of any other than as now observed—or ventured to anticipate their development in the future. Nor, indeed, has there ever been described any division of their bodies into special organs or any function beyond their self-multiplication by "fission," that is, by division of each unit into two, and so on, ad infinitum, resulting by geometrical progression in such an enormous increase of numbers in a very short space of time—under favorable circumstances—as to defy the power of imagination to comprehend.

In the United States alone the loss through typhoid fever and other diseases whose germs are disseminated by our sewage-polluted water supplies is almost incomprehensible. It is within

bounds to estimate the number of persons annually thus afflicted at 300,000, of whom 50,000 die. At the lowest legal valuation set upon human life the enormous total of $278,000,000 is found to be the equivalent cash loss. If by improvement of the water-supplies the death rate could be reduced eighty-five per cent. $236,000,000 would remain for this purpose, and this amount at five per cent. annually for interest and sinking-fund charges for forty years would justify an outlay of no less than $4,054,671,000 for water purification.

YELLOW FEVER AND THE ARMY.

That yellow fever should have broken out in the army at Santiago de Cuba, a notoriously yellow fever endemic locality, is not surprising to any one familiar with the history of the disease. But considering the praiseworthy co-operation of the medical corps of the Army, Navy and Marine Hospital Service, together with the Red Cross Society nurses thereabout, as well as at the places of rendezvous of the forces in Florida and elsewhere, there should be no question with regard to the prompt control of the disease and the certainty of preventing an epidemic.

The recent outbreak of the disease at McHenry, Mississippi, appears to have been a timely admonition to some of the health authorities of other Gulf coast localities to *thoroughly clean up* as the most effective quarantine measure within their grasp. Moreover, in the possible outbreak of the disease at any other locality, they should show a just appreciation of the quickness with which the national quarantine officers stamped out the disease and raised the quarantine against that locality, by promptly placing themselves under the direction of the national authority as the only safeguard against panic and needless obstruction to travel and commerce.

The recent action of the Louisiana State Board of Health—described below with special reference to Mobile—is a case in point, and the more remarkable because the President of that board was a leading spirit at the Atlanta convention in an agreement to pursue a different course. The example of the Louisiana board was quickly followed by the State authorities of Alabama, and but for the intervention and prompt action of the Marine Hospital Service in stamping out the disease at McHenry there would doubtless have been a repetition of the confusion of last year, and

ever likely to recur so long as quarantine is relied upon by local authorities as the chief defense against infectious diseases introduced by commerce or otherwise.

In pleasing contrast with the action of the health authorities of Louisiana and Alabama, Dr. R. M. Swearingen, State Health Officer of Texas, on being approached with reference to similar action, is reported (Houston "Post," June 23) to have said he had noticed that Beaumont proposed to clean up and improve its sanitary condition generally. He commended this movement most heartily and remarked that if all coast towns would do likewise it would be impossible for epidemic or contagious diseases to get a foothold, much less become epidemic in Texas.

At a regular meeting of the town council of Pass Christian, Miss., June 22d, the mayor was instructed, by resolution, to enter suit in the United States Supreme Court, at New Orleans, for the town of Pass Christian, to enjoin the Louisiana State Board of Health from continuing its present unwarranted quarantine against this place. Judge H. Denis and Max Dinkelspiel will represent the Pass in the case. This suit is brought for the purpose of testing the legal right of one community to quarantine against a non-infected and perfectly healthy point.

MORTALITY AND MORBILITY REPORTS AND REVIEWS.

Correspondents under this head are particularly requested to be as prompt as possible.

ALABAMA.—W. H. Sanders, M. D., State Health Officer, Montgomery.

"THE 1898 QUARANTINE," as recently imposed by the Louisiana State Board of Health, says the "Mobile Register" of July 2d, against "a place that is not infected and which that board knows is not infected, a place the board does not even allege to be infected, is a new style of quarantine.

"The idiosyncrasies of the new style, '1898' quarantine, are shown by the experience of a man and his wife who want to go to New Orleans, having come to Mobile from Pass Christian, Miss. Pass Christian is not a fever-infected place. There has been no fever there this season. There was no fever there last season. Nevertheless, because it is in Harrison county, Mississippi, and McHenry, an infected town, is in the same county, New Orleans has quarantined against it, and the gentleman and lady now here cannot go to New Orleans because they cannot get a

certificate that they have not been in Harrison county. They are told that they can go to the camp of detention just outside of McHenry, and after a stay of ten days there they can go into New Orleans, but the gentleman is naturally adverse to going to a camp of detention where people from McHenry are close at hand. He does not want to get that close to the actual fever. To top the absurdity, the physician at Fontainebleau says he will not under any consideration admit into the camp of detention any person from a healthy place—Mobile, for example. Still another feature is that if the gentleman and his wife should remain here ten days and then apply to the health officer, not telling him anything of their habitat, they could demand and the health officer would have to give them without further inquiry a certificate saying that they had been in Mobile ten days and during that time had not been exposed to fever. With this they could enter New Orleans; but, as they have admitted in advance that they came from Pass Christian, they are barred out. * * * The Louisiana State Board of Health, in its excess of zeal, is violating the theory and practice of quarantine, and doing more to bring about the abolition of State control of quarantine than any other influence now at work; and, we add, that if State control is to be of the character exhibited by the Louisiana board, the sooner we get some other kind of control the better for us and the better for the whole Southern country. * * * Bad as national quarantine would probably be for our local interests, it would not be worse than this, and we think most people who favor State quarantine will agree with us in our opinion."

But this is not a new style. It is only a resumption of the old style, that for which the "Register" so vigorously contended last year. It is fortunate, perhaps, for the contention for a national quarantine with plenary power, that would exercise no partialities except for the protection of the public health, that the "Register" should be so soon made sensible of its misplaced faith in the Atlanta convention agreement. The "Register" ought to have known from past experience that which it seems to have just now learned, as implied in this sentence of its contention, that:

"This entire misapplication of the machinery agreed upon for the safety of the people is due to the timidity of the members of the Louisiana State Board of Health. They know that it is not justified nor justifiable on any ground save that they want to satisfy the fears of their home people."

That, in short, there is no community in the Southern States, or elsewhere in this country, that would not subordinate the promise made at the Atlanta convention to the fears of their home people, hence the just conclusion of the "Register" that national quarantine would be more favorable to the local interest of Mobile, as it certainly is to other places.

The promptitude with which the disease was stamped out at McHenry by the Marine Hospital Service, facilitated by the local authorities, so quickly enabling the Alabama State Board of Health and authorities to raise quarantine against that place and neighborhood, should be an encouraging lesson to the "Register" against any lingering doubts it may have about the superiority of the national service generally.

July 9.—Mobile learned with much regret of the destruction by fire at an early hour this morning, 4:30 o'clock, of the quarantine plant at Mobile Bay, situated near Fort Morgan, at the entrance of the bay. The fire was purely an accident, as reported by Surgeon Henry Goldthwaite, in charge. The plant was one of the best in the South, and was completed in 1891 at a cost of $50,000, paid for equally by the State and county of Mobile, and since that time has received many expensive repairs, the last costing $10,000.

CALIFORNIA.—C. A. Ruggles, M. D., President, Stockton; W. P. Matthews, M. D., Secretary, Sacramento.

San Francisco, 360,000. J. Gallwey, M. D., Health Officer. Report for May: Deaths, 555—110 under five years. From zymotic diseases, 47; diphtheria, 19; typhoid fever, 6; cerebro-spinal fever, 3; phthisis, 90; bronchitis, 12; pneumonia, 63. Annual death rate, 18.36.

Los Angeles, 103,000. Q. M. Powers, M. D., Health Officer. Report for May: Deaths, 142. From phthisis, 25; acute pulmonary diseases, 8. Annual death rate, 16.5.

COLORADO.—A. Stedman, M. D., President, Denver; Henry Sewell, M. D., Secretary, Denver.

Denver, 167,000. William P. Munn, M. D., Health Commissioner. Report for May: Total number of deaths, 151. Annual death rate, 10.85. The principal causes of death were: Phthisis (contracted elsewhere), 38; tuberculosis of all kinds, 49; diphtheria, 0; pneumonia, 11; heart disease, 15; and nephritis, 10. There were 27 cases of diphtheria, as compared with 36 in April; 10 cases of scarlet fever, as compared with 10 in April; and 3 cases of measles, as compared with 3 in April.

CONNECTICUT.—Professor William H. Brewer, Ph. D., New Haven, President; Prof. C. S. Lindsley, M. D., Secretary, New Haven.

New Haven, 110,000. F. W. Wright, M. D., Health Officer, reports for the year 1897: Total mortality, 1,768—528 under five years of age. Death rate, 16.07 per 1,000. Zymotic diseases caused 372 deaths, of which there were of measles 9; scarlatina, 19; typhoid fever, 25; diphtheria, 87; consumption caused 214 deaths, and respiratory diseases, 211. There were 400 cases of diphtheria reported, 290 of scarlatina, 100 of typhoid, and 1 of smallpox.

DISTRICT OF COLUMBIA, 276,963—88,176 colored. Wm. C. Woodward, M. D., Health Officer, reports the mortality for four weeks ending June 25, 432. Death rates, 15.6 for the white, 29.5 for the colored, and 22.6 for the whole population. Deaths from zymotic diseases, 90; diphtheria, 7; consumption, 56.

ILLINOIS.—L. Adelsberger, M. D., President, Waterloo; J. A. Egan, M. D., Secretary, Springfield.

Chicago, 1,619,226. A. R. Reynolds, M. D., Commissioner, reports: Total deaths from all causes during the month of May, 1898, 2,022; monthly death rate per 1,000 of population (white, 1.23; colored, 2.73), 1.25; annual death rate, twelve months ended May 31, 1898, per 1,000 of mean population (white, 14.09; colored, 22.25), 14.19.

Deaths from diphtheria, 29; typhoid fever, 67; influenza, 13; consumption, 227; other tubercular diseases, 47; pneumonia, 268; bronchitis, 91. Contagious diseases reported during the month: Diphtheria, 108; scarlet fever, 69.

INDIANA.—H. Jamerson, M. D., President, Indianapolis; J. N. Hurty, M. D., Ph. D., Secretary, Indianapolis.

IOWA.—J. I. Gibson, V. S., President, Denison; J. F. Kennedy, M. D., Secretary, Des Moines.

State Board bulletin for June: Diseases reported in May: Scarlet fever—Cerro Gordo, Dubuque, Van Buren and Wapello counties. Measles—Harrison, Guthrie and Wapello counties. Diphtheria—Cherokee, Boone, Wapello, Hardin and O'Brien counties.

Davenport, 36,000. A. W. Cantwell, M. D., Health Officer, reports for May: 38 deaths, of which 7 were from consumption, 3 from pneumonja, 1 from bronchitis and 1 from influenza.

LOUISIANA.—Edmond Souchon, President, New Orleans; G. F. Patton, M. D., Secretary, New Orleans.

New Orleans, 275,000—80,000 colored.

June 24: The Board of Health modified its quarantine regulations yesterday. All persons from Alabama, including Mobile or other towns, will be obliged to produce health certificates before entering Louisiana. This precaution was thought necessary on account of the relaxing of quarantine measures at Mobile.

The new State Board of Health bill, recently signed by the Governor, provides that: "For the city of New Orleans, the State Board alone shall have power to establish quarantines. Local boards of health shall have power to establish quarantines with the co-operation of the Councils of municipalities and police juries. The State Board shall have supervisory power over all local quarantines so established."

MARYLAND.—John Morris, M. D., President, Baltimore; John S. Fulton, M. D., Secretary, Baltimore.

Extraordinary efforts are being made by the State Board of Health to secure a more accurate registration of births and deaths. Trustworthy vital statistics are justly urged as being almost the only means of determining the efficacy of sanitary regulations.

Baltimore, 506,398—73,344 colored.—G. Hampson Jones, M.D., Health Commissioner, reports for May: The total deaths were 809, an increase of 123 compared with the corresponding month of May, 1897. Of these 590 were whites and 219 colored; a death rate of 16.42 per thousand for the former and 35.04 per thousand for the latter. The death rate per thousand for the whole population was 19.18. 63 died from infectious diseases, 98 from consumption, 75 from pneumonia, 26 from bronchitis, 38 from nephritis, 18 from apoplexy, and 8 from typhoid fever. 283 or 24.98 per cent. of the total deaths were in children under five years of age.

Cases of infectious diseases reported during the month, 454, a decrease of 15 compared with the preceding month.

MASSACHUSETTS.—H. P. Walcot, M.D., Chairman, Cambridge; S. W. Abbott, M. D., Secretary, Boston.

Boston, 528,912. Samuel H. Durgin, M. D., Chairman of Board of Health.

During the month of May there were 868 deaths, of which 216 were under five years of age. Annual death rate, 19.69 per 1,000. Deaths from diphtheria, 13; scarlatina, 1; typhoid fever, 9; cerebro-spinal meningitis, 13; consumption, 115. Cases of diphtheria reported, 102; measles, 310; scarlatina, 62; typhoid fever, 27.

Ripping Up the Slums.—("Transcript") July 21: In the fifteen months up to the present time the Board of Health has, according to Mr. Jordan, the chief inspector, "torn down," or more accurately and in the words of the law, "ordered to be removed," sixteen buildings. New York is the only other city in this country where the Board of Health has this power. There—even if the law went into effect immediately after its passage on Aug. 9, 1895—within the first fifteen months the Board of Health condemned and ordered removed seventy-two buildings. Our Health Board refrained from using this important new power during nine months of last year. Hence in six months our board ordered sixteen buildings removed. But it is to be remembered that in one-half that time, in the three months between June 2 and Sept. 1, 1896, the New York board ordered eighty houses removed.

Dr. Durgin can claim that our board has torn down more buildings in the last six months than the New York board during the same six months; but heaven forbid that any department of our City Government, and particularly our good Board of Health, should consider it a boast to have done its duty better than Croker's machine.

MICHIGAN.—Hon. Frank Wells, President, Lansing; Henry B. Baker, M. D., Secretary, Lansing.

The Secretary reports for the month of June, 1898: Compared with the preceding month, diarrhœa, remittent fever and measles increased, and pneumonia, influenza and pleuritis decreased in area of prevalence. Compared with the average for June in the twelve years, 1886-1897, diphtheria, scarlet fever, whooping-cough, intermittent fever, consumption, cholera morbus, dysentery, erysipelas, remittent fever, cholera infantum and inflammation of the bowels were less prevalent.

Reports from all sources show consumption reported at 14

places more, measles at 12 places less, diphtheria at 13 places more, scarlet fever at 7 places less, whooping-cough at 6 places more, and typhoid fever at 3 places less, in the month of June, 1898, than in the preceding month.

The total number of deaths registered in Michigan during the month of June was 2,055. This number is 404 less than the number registered for May, and 634 less than the number registered for April. The death rate for the month was 11.0 per 1,000 estimated population, the lowest of any month since the beginning of registration. There were 339 deaths of infants under one year of age, and 132 deaths of children aged from one to four years. Consumption caused 201 deaths, 21 less than in May; typhoid fever, 29; diphtheria and croup, 28; scarlet fever, 4; measles, 11; whooping cough, 25; pneumonia, 118; diarrhœal diseases of children, 71; cerebro-spinal meningitis, 39; influenza, 14. An epidemic of diphtheria in Albert township, Montgomery county, caused 9 deaths. Otherwise the month was an exceptionally favorable one as regards the condition of the public health. The most marked decline as compared with May occurred in pneumonia, while the diarrhœal diseases of children showed only a slight increase.

MINNESOTA.—Franklin Staples, M. D., President, Winona; H. M. Bracken, M. D., Secretary, St. Paul.

St. Paul, 215,582. A. J. Stone, M. D., LL.D., Commissioner of Health, reports for the month of May: 184 deaths, representing an annual death rate of 10.3 per 1,000. Deaths under five years of age numbered 81. Consumption caused 24 deaths; pneumonia, 42; bronchitis, 10; typhoid fever, 6; scarlatina, 3; diphtheria, 2; measles, 6.

Winona, 22,000. F. Staples, M. D., Health Officer, reports for the year ending March 31, 1897: Total mortality, 248; under five years of age, 101. Death rate per 1,000, 11.3. Consumption caused 25 deaths; scarlatina, 3 cases, no deaths; diphtheria, 10 cases, no deaths; typhoid fever, 2 deaths.

MISSOURI.—E. L. Standlee, M. D., President, St. Louis; Paul Paquin, M. D., Secretary, St. Louis.

St. Louis, 623,000—36,000 colored. M. C. Starkloff, M. D., Commissioner of Health, reports for May: The annual death rate per 1,000 during the month was 14.01, this being based on a population of 623,000, computed on census figures of 1890 (460,-

000), at the rate of four per cent. annual increase. During the month there were 728 deaths. Twenty-seven certificates were issued for deaths occurring outside the city limits; these were not included in the monthly statement. Percentage of deaths in eleemosynary and other institutions of a public character to total mortality, 27.6. Percentage of deaths in city institutions to total mortality, 14.8. White population, 587,000; mortality rate per thousand, 12.81. Colored population, 36,000; mortality rate per thousand, 36.66.

Report for the year ending March 31, 1897: Total mortality, 10,040, of which 3,241 were under five years of age. Death rate, 23.7 per 1,000. The tornado which occurred May 27, 1896, caused 133 of the deaths recorded. From zymotic diseases there were 1,558 deaths, of which 290 were from diphtheria and croup, 6 from scarlatina, 17 from cerebro-spinal fever, 59 from whooping-cough, 118 from typhoid fever, 170 from malarial fevers, and 756 from diarrhœal diseases. Consumption caused 1,033 deaths; bronchitis, 364; pneumonia, 1,060; other respiratory diseases, 246.

Kansas City, 200,000. A. N. Shirk, Health Officer, reports for May: 193 deaths, of which 43 were under five years of age. Consumption caused 6 deaths; tuberculosis, 14; pneumonia, 23; bronchitis, 5. Annual death rate, 9.07 per 1,000.

New Jersey.—C. F. Brackett, M. D., President, Princeton; Henry Mitchell, M. D., Secretary, Asbury Park.

Newark, 235,000. Health Officer Chandler reports for the four weeks ending June 25: Deaths, 255—84 under five years of age; from diphtheria, 6; consumption, 40; pneumonia, 13. Annual death rate, 14.12.

Paterson, 110,692. J. L. Leal, M. D., Health Officer, reports for May: Deaths, 119—36 under five years of age. Annual deatn rate, 10.72. Deaths from diphtheria, 5; consumption, 15; pneumonia, 15.

New York.—Daniel Lewis, M. D., President, New York; B. T. Smelzer, M. D., Secretary, Albany.

The Secretary's bulletin for May reports a small decrease in the mortality from the two preceding months, from a daily average of 333 deaths to 315; in May, 1897, the daily average was 300. The death rate was 17.15, against 18.75 in April and 17.00 in May, 1897. The decrease in the number of deaths from April to May

is less than usual, there being uniformly in this State a diminution amounting to about 800, this year there being less than 300. The mortality of early life is about the same as customary for both May and April, 27.5 per cent. of the deaths occurring under the age of five years. There were 900 deaths from zymotic diseases, a number below the average, the two months of May and April being usually nearly identical in these. Scarlet fever is the only one of this class which shows an increase; there were 113 deaths reported from it, only 10 of which occurred outside the maritime district. Diphtheria has further decreased, and the 221 deaths from it are but half the average number for May for the past ten years. Whooping-cough is more prevalent than it was a year ago and is generally distributed throughout the State. Other zymotic diseases show no deviation from the average mortality. The most notable occurrence during the month was the importation into this State the last of April of small-pox by a traveling theatrical troupe, in which was a mild ambulant case of varioloid contracted in West Virginia, escaping detection until it had visited twenty places; the troupe, which traveled in its own cars and had its own exhibition tent, was arrested May 21 at Geneva and placed in quarantine; cases from its membership or contracted by others have developed at Ithaca, Geneva, Buffalo, Dansville, Locke, Union Springs, West Sparta, Rochester, and recently also at Fredonia and Moravia. All these cases are in quarantine and the further spread is not anticipated; none of them has proved fatal. The mortality from acute respiratory diseases is 300 less than in April and 200 more than in last May, and there is a small increase in deaths from other local diseases over the number of a year ago. Grippe has not caused more than 200 deaths; it has been credited this year with 2,300 deaths, and the current epidemic, commencing in January, is practically ended. The weather during the month was characterized by the average temperature for the State, a moderate excess of rainfall, an unusually small number of clear days, with high relative humidity of the atmosphere, and moderate varying winds.

New York City, 3,438,899. Michael C. Murphy, President; W. T. Jenkins, M. D., and J. B. Cosby, M. D., Commissioners of Health; Emmons Clark, Secretary; Charles F. Roberts, M. D., Sanitary Superintendent; Roger S. Tracy, M. D., Registrar of Records.

Borough of Manhattan, 1,911,755. Frederic H. Dillingham,

M. D., Assistant Sanitary Superintendent; Thomas C. Taylor, M. D., Assistant Registrar of Records. Deaths, 2,924—1,083 under five years; death rate, 18.00; deaths from zymotic diseases per 1,000 deaths from all causes, 101.50; from typhoid fever, 8; scarlet fever, 42; diphtheria, 85; acute respiratory diseases, 556; consumption, 355.

Borough of Bronx, 137,075. Eugene Monogan, M. D., Assistant Sanitary Superintendent; Arthur J. O'Leary, M. D., Assistant Registrar of Records. Deaths, 303—99 under five years; death rate, 26.00; from zymotic diseases per 1,000 from all causes, 226.75.

Borough of Brooklyn, 1,197,100. Robert A. Black, M. D., Assistant Sanitary Superintendent; Sylvester J. Byrne, M. D., Assistant Registrar of Records. Deaths, 1,682—549 under five years; death rate, 16.55; deaths from zymotic diseases per 1,000 from all causes, 115.00; typhoid fever, 7; diphtheria, 72; acute respiratory diseases, 279; consumption, 196.

Borough of Queens, 128,042. Obed L. Lusk, M. D., Assistant Sanitary Superintendent; Frank Wickham, M. D., Assistant Registrar of Records. Deaths, 201—72 under five years; death rate, 18.53; deaths from zymotic diseases per 1,000 from all causes, 100.

Borough of Richmond, 64,927. Geo. C. Hubbard, M. D., Assistant Sanitary Superintendent; P. Walter Wood, M. D., Assistant Registrar of Records. Deaths, 82—21 under five years; death rate, 15.00; from zymotic diseases per 1,000 from all causes, 125.00.

Total: Deaths, 5,192—1,824 under five years of age; death rate, 17.75; deaths from zymotic diseases per 1,000 from all causes, 113.50; deaths from typhoid fever, 18; scarlet fever, 99; measles, 78; diphtheria, 172; acute respiratory diseases, 917; consumption, 669.

The Sanitary Superintendent of the Health Department, Dr. Charles F. Roberts, reported July 22 the largest seizure of spoiled fish, meat and fruit ever made since the organization of the Health Department was that of the week ending June 18, the heat being responsible. He said that 346,041 pounds of meat, 100,535 pounds of "bob" veal, 368,600 pounds of fish and 2,919,073 pounds of fruit were seized by the inspectors. The number of cows examined was 289, of which 31 were condemned as having tuberculosis. More encouraging was the report that not a single quart of milk was found that had been adulterated.

Buffalo, 360,000. Ernest Wende, M. D., Health Commissioner, reports for May: Deaths, 432—140 under five years; death rate, 14.15; from zymotic diseases per 1,000 from all causes, 92.56; diphtheria, 4; typhoid fever, 10; acute respiratory diseases, 98; consumption, 42.

Rochester, 175,000. George W. Goler, M. D., Health Officer. Report for May: Deaths, 186—29 under five years; death rate, 12.52; from zymotic diseases per 1,000 from all causes, 65; acute respiratory diseases, 23; consumption, 26.

Albany, 100,000. Report for May: Deaths, 167—38 under five years; death rate, 20.00; from zymotic diseases per 1,000 from all causes, 54; typhoid fever, 3; diphtheria, 1; acute lung diseases, 19; consumption, 29.

Syracuse, 120,000. Report for May: Deaths, 130—24 under five years; death rate, 13.00; from zymotic diseases per 1,000 deaths from all causes, 70; acute lung diseases, 14; consumption, 13.

North Carolina.—George G. Thomas, M. D., President, Wilmington; Richard H. Lewis, M. D., Secretary, Raleigh.

The June Bulletin summarizes the mortality for May, from twenty-two towns, with an aggregate population of 121,410—53,621 colored. Aggregate deaths respectively, 169—75 white, 94 colored—representing annual death rates, 13.3; 21.0; 16.7. The causes of death were: Consumption, 13; pneumonia, 5; heart disease, 13; brain diseases, 11; typhoid fever, 2; diarrhœal diseases, 24. Deaths under five years of age, 61—37 colored. Still-born, 21—15 colored.

Ohio.—S. P. Wise, M. D., President, Millersburg; C. O. Probst, M. D., Secretary, Columbus.

Cincinnati, 405,000. J. M. Winthrow, M. D., Health Officer, reports for May: 482 deaths—147 under five years of age. Annual death rate, 14.28. From consumption, 48; pneumonia, 44; bronchitis, 33; diphtheria, 2; typhoid fever, 8; whooping cough, 17.

June 1.—Dr. W. A. R. Tenney has been appointed Health Officer to succeed Dr. Winthrow.

Cleveland, 370,000. J. L. Hess, M. D., Health Officer, reports for the month of May: Deaths, 451—146 under five years. From diphtheria, 5; typhoid fever, 10: phthisis and tuberculosis, 41; pneumonia, 67; bronchitis, 13. Death rate, 14.62.

PENNSYLVANIA.—Pemberton Dudley, M. D., President, Philadelphia; Benjamin Lee, M. D., Secretary, Philadelphia.

Philadelphia, 1,240,266. Benjamin Lee, M. D., Health Officer, reports for the five weeks ending June 28: Deaths, 2,064—582 under five years of age. From diphtheria, 71; typhoid fever, 36; consumption, 226; pneumonia, 171.

A Move for Pure Water.—July 7: The big loan bill is at last a law. The much-needed improvement of the city's water supply was given a forward movement yesterday, when Councils' Joint Committees of Finance and Water agreed to favorably report ordinances to appropriate the entire $3,700,000 provided for that purpose in the loan bill.

Pittsburg, 295,000. Report for the four weeks ending June 25: Deaths, 397—202 under five years of age; consumption, 28; pneumonia, 22. Death rate, 17.4.

Annual report for the year 1897: The total number of deaths was 4,745, of which 1,964 were under five years of age. The death rate per 1,000 was 16.5. Of the infectious diseases there were: Cerebro-spinal fever, 16 cases, with 14 deaths; diphtheria and croup, 601 cases, with 135 deaths; scarlatina, 293 cases, with 22 deaths; typhoid fever, 1,408 cases, with 184 deaths; measles, 90 deaths; whooping-cough, 108 deaths. Tuberculosis caused 447 deaths, of which 317 were pulmonary consumption. Pneumonia caused 482 deaths; bronchitis, 163; diarrhœal diseases, 335.

Lancaster, June 29.—Typhoid fever prevails here to an alarming extent, and the Board of Health lays the trouble upon the water of the Conestoga creek, the source of the city's supply, which they declare is polluted. Quite a number of deaths have resulted from the disease, and there appears no sign of its decrease. Typhoid fever recurs here every spring and summer, and last season thirty-five deaths occurred from it.

Hazleton (June 15) has an epidemic of diphtheria. Seventeen cases have developed in the eastern section of the city since June 7. Every precaution possible is being taken by the health authorities, and the spread of the contagion is due mainly to carelessness on the part of the people.

SOUTH CAROLINA.—Charleston, 65,165—white, 28,870; colored. 36,295. H. B. Horlbeck, M. D., Health Officer, reports for four weeks ending June 25: Deaths, 132—95 colored. Under five years of age, 44. Annual death rate—white, 16.65; colored, 34.27—25.46.

Annual report for 1897: Total mortality, 1,590, of which 447 were whites and 1,143 colored. The ratio of whites was 15.52 per 1,000; colored, 31.49; total, 23.55. There were 184 deaths from consumption—158 colored; typhoid fever, 40—26 colored; scarlatina, 6—1 colored; pneumonia, 82—63 colored; tuberculosis, 53—39 colored.

TENNESSEE.—W. J. McMurray, M. D., President, Nashville; J. A. Albright, M. D., Secretary, Somerville.

Memphis, 61,747—30,317 colored. Herbert Jones, M. D., President; Marcus Haas, M. D., Secretary. Report for May: Deaths, 115—70 colored. Annual death rates: White, 17.17; colored, 23.35—22.34. Deaths from phthisis, 23; pneumonia, 8.

WASHINGTON.—Seattle, 70,000. Clarence A. Smith, M. D., Health Officer and Secretary, reports for May: Deaths, 59. Annual death rate per 1,000, 10.28. Deaths from consumption, 5; pneumonia, 3; diphtheria, 5.

WISCONSIN.—Solon Marks, M. D., President, Milwaukee; U. O. B. Wingate, M. D., Secretary, Milwaukee.

Milwaukee, 275,000. ———, M. D., Commissioner of Health, reports for May: Deaths, 262—82 under five years of age. Annual death rate per 1,000, 11.43. Deaths from diphtheria, 1; typhoid fever, 6; consumption, 31; other tubercular diseases, 13; pneumonia, 24; bronchitis, 14; other respiratory diseases, 10.

OCCUPATIONAL MORTALITY.

The valuable tables contained in the report of the varying rates of mortality prevailing among men engaged in different occupations, and Dr. Tatham's conclusions drawn from the facts and calculated rates of which they consist, are based upon more than half a million of deaths that occurred during the three years 1890-92 among the male population of England and Wales above the age of 15 years. The years of life exposed to risk during these three years were nearly 27 millions. With such an extended basis of facts the calculated rates dealt with in this report acquire a very exceptional degree of trustworthiness.

The main conclusions in the report are based upon the death-rates of males aged between 25 and 65, the period during which the effect of occupation is assumed to be most marked, and in which the proportion of occupied males is largest. Taking 1,000 to represent the mortality of all males at these ages in England and Wales in 1890-92, the comparative mortality figure for all occupied males was only 953, whereas the residue, classed as unoccupied males, gave a mortality figure of 2,215. This alarming mortality of unoccupied males is, however, susceptible of easy explanation. The deaths of occupied males at these ages in the three years numbered 250,184, while the deaths of unoccupied males were but 27,299, and included all the deaths at these ages in lunatic asylums, all the deaths in workhouses, hospitals and prisons, of inmates aged between 60 and 65 years, in addition to those of persons retired from business, living on private means, or pensioners. The death rate among this incongruous aggregation of so-called unoccupied males has, it should be mentioned, no real statistical value, and its constitution fully accounts for the fact that the comparative mortality figures for all occupied males is so distinctly below that for all males in England and Wales. On the other hand, it should be noted that the separate treatment of this unoccupied class does not materially depreciate the value of the comparative mortality figures for the several occupational headings, as there is no good reason for believing that the proportional contribution to this unoccupied class from the males engaged in the several occupations varied to any considerable extent.

This report tells us that while the comparative mortality figure for all occupied males in England and Wales was 933, it was only 687 in agricultural districts, while it was 1,147 in London and 1,248 in industrial districts. This very wide difference undoubtedly points broadly to the greater healthfulness of agricultural than of industrial occupations. It also points, however, to the existence of sanitary and social factors which should be constantly borne in mind when drawing inferences from these occupational mortality statistics. It is obvious that the difference between the comparative mortality figure for "farm laborer, farm servant" (632) and that for "general laborer" in industrial districts (1,509) is not so much the effect of occupation as of housing, feeding, and of sanitary condition in the broadest sense of that term. While noting, for instance, that "coster-mongers,

hawkers" have a comparative mortality figure of 1,652, we should not forget that this excessive death rate is due far more to insanitary conditions of life than to inherent unhealthiness of their occupation, which under other conditions of living would inevitably show widely different results. These considerations should not be forgotten, as they more or less affect the comparison of the mortality statistics of all occupations.

The clerical profession maintains its position as the occupation showing the lowest death rate, with a comparative mortality figure of 533; the comparative figure for "school-master, teacher" is not much higher (604), while it is 821 in the legal profession, and 966 in the medical profession. The figure for law clerks is 1,070, and for "musician, music master," 1,214; the latter high figure is probably in part due to the inclusion of a considerable proportion of itinerant musicians. Farmers and gradeners show remarkably low mortality, their figures being respectively 563 and 553. All occupations connected with the liquor traffic show still higher mortality figures than those to which Dr. Farr and Dr. Ogle called attention in previous Decennial Supplements. The figure for brewers is 1,427; for innkeeper, publican, etc., 1,642, and for inn hotel servant 1,725. Among the shopkeeping class, tobacconists, milksellers, cheese-mongers and drapers showed mortality figures exceeding 1,000, whereas the figure was 833 for booksellers, 803 for coal merchants, and 664 for grocers. The mean figure for all shopkeepers did not exceed 859. Butchers, hatters, hair-dressers, and "tallow, soap, glue, etc., manufacture," all showed mortality figures ranging from 1,096 to 1,109. The excessive mortality of cutlers, file makers, scissor makers and nail makers, noted in previous periods of observations, was still higher in 1890-92. Among other industrial occupations, slaters and tilers, wool, silk, and cotton dyers, potters and glass manufacturers, again showed marked excess of mortality, and tin miners, coalheavers, costermongers and chimney sweepers gave figures varying from 1,311 to 1,652.

The most novel, and at the same time, perhaps, the most interesting feature in the report is the elaborate and scientific treatment of the relative incidence of the principal causes of death upon those engaged in the different occupations. The age, occupation and cause of death of each of the more than half a million males aged above 15 who died in the three years under observation were tabulated in combination. The tables in the

report therefore show not only the comparative mortality figure for all causes, but also the relative proportions of this total mortality which was due to each of twelve of the principal causes of death. Not only is the mortality figure for all causes corrected for the varying age constitution of those engaged in the various occupations, but by an ingeniously-devised method, a comparative mortality figure for each separate disease has been calculated for each occupation, which accurately takes account of the varying age proportion prevailing in the different occupations. The effect of this correction of disease mortality for variations of age proportions is obviously most marked upon the comparative mortality figures for such diseases as phthisis and cancer, the death rates from which vary so widely at different ages. As an example, it may be noted that the uncorrected mortality figure for inn servants from phthisis and cancer is 572 and 41, respectively; but after correction for abnormal age proportion, the phthisis rate is reduced to 476, and the cancer rate is raised to 65. In other words, the low mean age for inn servants produces without correction an unduly high rate of mortality from phthisis and an unduly low rate from cancer.

Thus corrected for the disturbing influence of varying age proportions in the different occupations the comparative mortality figures for liver disease, diabetes, urinary diseases, gout, as well as definitely certified alcoholism, among those engaged in occupations connected with the liquor traffic, acquire a considerably enhanced value, and accentuate the warnings conveyed in the reports previously prepared. It is shown that if we take 100 to represent the mean mortality among all occupied males at these ages from each cause of death, the comparative mortality figures for publicans, innkeepers, and their servants, is 723 from alcoholism, 600 from gout, 271 from diabetes, 644 from diseases of the liver, 210 from urinary diseases, and 207 from suicide.

The figures bearing upon the fatal effects of breathing dust-laden air, or air fouled in other ways, have similarly acquired greatly increased value from the careful elimination of the disturbing influence of the varying age proportions of persons engaged in different occupations. Taking 100 to represent the combined mortality from phthisis and disease of the respiratory organs among those engaged in agricultural occupations, it is shown in a special table in this report that the comparative mortality figure from these diseases among those engaged in occu-

pations which cause dust of various kinds, ranges upward to 373 for file makers, 407 for cutlers and scissors makers, and 453 for potters and earthenware manufacturers. The effects of the inhalation of impure air, although not necessarily dust-laden air, is shown in another table, from which it appears that the phthisis mortality figure, which is 106 for agriculturists, rises to 301 for hatters, 322 for musicians, 326 for printers, and 325 for bookbinders; each of these occupations showing also a marked excess of mortality from diseases of the respiratory organs.

This report adds much of interest in connection with the evidence, direct and indirect, of lead poisoning among lead workers, file workers, plumbers, painters, glaziers, potters, glass makers, etc. Indeed the report teems with information and facts deserving careful study at the hands of all students of the hygiene of occupations.

Rightly used, the statistics in the report cannot fail to afford practical help in the direction of lessening the dangers incidental to certain occupations. In order, however, to avoid false or too arbitrary deductions from the figures, it is absolutely necessary that the many-sided aspect of the subject dealt with, and the variety of factors that contribute to the results, should be constantly borne in mind. Above all, it should be remembered that while the report bears abundant evidence of the utmost possible skill and care in the treatment of the figures, the results must, on account of the source and nature of the facts dealt with, be accepted as relatively rather than as absolutely accurate. While the arithmetical processes employed in the treatment of the collected data secure mathematical accuracy in the calculated rates and percentages, it would answer no useful purpose to shut our eyes to the inevitable defects of the data recorded in the census schedules and the death registers concerning the occupations and causes of death of the male population of England and Wales.—British Medical Journal.

DANGEROUS VISITS.—The trial of a doctor's suit was published in a Connecticut newspaper some years ago, in which a witness was called for the purpose of proving the correctness of the doctor's bill. The witness was asked by the lawyer whether the doctor did not make several visits after the patient was out of danger? "No," replied the witness, "I considered the patient in danger as long as the doctor continued his visits!"

BOOK REVIEWS.

YELLOW FEVER.—Clinical Notes by Just Touatre, M. D. (Paris), former physician in chief of the French Society Hospital, New Orleans; member of the Board of Experts, Louisiana State Board of Health. 12mo, pp. 220. New Orleans: New Orleans Medical and Surgical Journal, Ltd., 1898.—A terse monograph, based upon thirty-three years' practical experience and study in nine epidemics, and the treatment of over two thousand cases.

It is divided into seven chapters: General Observations; Symptomatology; "Faget's Law"—The fall in pulse rate—Clinical charts of the pulse and temperature, types and variations; Yellow Fever in Children; Diagnosis; Prognosis; Treatment.

So far as we have observed, this is the first book of any consequence on the diagnosis and treatment of yellow fever, under the light of bacteriological knowledge. Nevertheless, the author observes, at the outset:

"It is at the bedside that we learn the course of the disease, the value or importance of a symptom and the propriety or urgency of such and such medication. Hence, I believe that while it is necessary to keep an eye on the microbe, the enemy, both eyes must be kept wide open on the patient, the victim."

This proposition is maintained with remarkable lucidity—with an exception that will presently appear. Faget's law is cogently demonstrated by charts of the pulse and temperature of many typical cases, together with such occasional variations as are caused by difference in age, habits and local conditions, as no would-be successful practitioner can afford to neglect. To our knowledge, no such lucid description of the symptoms of yellow fever is to be found in any other publication hitherto.

The author states that his entire experience has been in New Orleans, where yellow fever has been wont to prevail occasionally ever since that locality has had a reliable record, where he has studied the history of thirty-three epidemics, yet he concludes that "yellow fever always comes there from importation," and that it "is certainly contagious, even very contagious under certain circumstances, as, for instance, on a ship or in a small vil-

lage." * * * "All microbian diseases are more or less contagious." (Then it must be inferred that the author does not believe intermittent and other malarial diseases are "microbian.") "A patient with yellow fever may communicate, and often does communicate, the disease to a person nursing him, one living in his room, living in the same house or the adjoining one, as I have seen in many instances"—events peculiar to infected places. Evidence of contagiousness under other circumstances is wholly wanting. These quoted statements imply that, in the author's study of the thirty-three epidemics to which he refers, he did not always "keep an eye on the microbe." For Bollinger demonstrated more than twenty years ago that the germ spores of anthrax and spleenic fever (doubtless equally applicable to yellow fever, as they have been recently shown to be of plague), retained their vitality during long intervals, continuously liable to virulent activity under favorable conditions, perhaps intermittently. He pointed out the important bearings of this knowledge on the probable infection of the soil in relation with the outbreaks of endemic diseases under favorable conditions—suggestions that are remarkably consistent with the history of several epidemics of yellow fever in New Orleans that are not otherwise authenticated.

"Contagious" and "infectious" he evidently considers synonymous words; for the instances of communication he cites are all in relation with infected surroundings. Moreover, the context virtually controverts his allegations in this regard. For, although it is always due to importation, it invariably takes a long time after the introduction of the first cases to form its foci and to propagate itself." Yet the incubative period of the disease is from one to five days after exposure.

These inconsistencies are doubtless due to the fact, as stated by the author himself, that his opportunities and studies have been wholly confined to observations in New Orleans, where, without reference to retained endemic conditions, the commercial relations are such as the author avails himself of to account for the *development of foci* from some imported cases—however long the interval—rather than take any account of the retaining conditions of the soil and weather, promotive of the activity of otherwise latent germs.

But the chapter on treatment is, for the most part, a fixation of both eyes on the microbe.

"Pasteur has taught us the pathogeny of infectious diseases, and since we have learned that no remedy has a direct and salutary effect on any microbe known to us, or its toxin, we load and irritate the stomach less and less with remedies. 'Drugs are dying out.' The treatment of yellow fever, just as that of the eruptive fevers and of typhoid fever, as well as all infectious diseases, tends to rid itself from day to day of remedies that are nearly always useless when they are not harmful. * * * The sovereign remedy in yellow fever will be the antitoxin whose discovery is announced by Sanarelli. As soon as it is at our disposal, we shall certainly be relieved of the enormous mortality of typhus icteroides in time of epidemics, especially if, as is the case with Roux' serum, it is both immunizing and curative."

However, he adds:

"While awaiting a practical realization of the great discovery, we are not entirely powerless," and proceeds to advise the use of such remedies as will (1) "strengthen and sustain the organism by fortifying the nervous system, by arresting congestion, and by increasing blood pressure and diuresis. (2) To consume, destroy and eliminate the toxin."

"*The first and the most indispensable thing for success in the treatment of yellow fever is that it be begun as soon as the disease has declared itself*" (italicized by the Editor).—Cold sponging, cold baths, aeration; vichy water, or if this is not at hand, cold water, ad libitum—and thirst is insatiable. "Rest is essential and indispensable."

"When confronting a patient attacked by yellow fever, *what must be done?*" (italicized by reviewer.) To this query the author elaborates that which is just above stated and adds "recommendations to the nurse"—scrupulous cleanliness, cleansing the mouth, disinfection of discharges, etc., and "administer every morning and night, by enema, a pint of warm water containing a tablespoonful of sulphate of soda or magnesia." He administers calomel, according to age, one grain to children, two to three grains to adolescents and adults, "more as an intestinal antiseptic than as a purgative;" and commends the Creole mustard foot-bath, as hot as can be borne.

He cites his own case, in 1866, the comfort and ease he derived from the carefully applied cold sponge bath, to the use of which he attributes his recovery, and since that time he has always sponged his patients—this, we are left to infer, is "the first and the most important thing for success"—than which there is surely no more effectual means of reducing the bodily temperature, nor

is there any disease in which this reduction is more imminently necessary. But one other, and at lease *equally important thing*: when first confronting a patient attacked with yellow fever, which the author omits, is so ineffaceably fixed upon this reviewer's memory that he adds it: a *purgative*. What shall it be? An *antacid* certainly, and if possessed of diaphoretic, properties also, so much the better, and one that will not cause nausea—always a grave symptom—and as it rarely occurs at the outset, it may be prevented by a timely antacid and non-iritating purgative.

Under the section, "Treatment of Vomiting," explaining the salutary effect of Vichy and other alkaline drinks, the author asks: "May not yellow fever be an acid disease?" So this reviewer regarded it more than fifty years ago. And as a counterpart to the author's reference to the treatment to which he attributes his recovery, the reveiwer adds an abstract of his case.

It was on board of an infected ship, at sea. I had had a restless night, ending with a chill from four to seven o'clock in the morning, and after an hour's writhing with such a backache and less night, ending with a chill from six to seven o'clock in the morning, and after an hour's writhing with such a neckache and drams each of calcined magnesia and sublimated sulphur. I then made my rounds of twenty-eight patients in their cots and hammocks; took my seat at the dispensary desk to prescribe for convalescents and other complainants. Ere I had finished, the intensity of my headache had so bewildered me with dizziness that I lay down on the deck, ordered the bath-tub filled and, aided by the Hospital Steward, I took a salt water bath. He aided me to my state room and took my order: "Two hours from this time, return with the ordinary enema mixture," which was one ounce of oil of turpentine and two ounces of castor oil in a pint of linseed tea. The order was obeyed, the enema was administered—gently as possible. I was well tucked-up, was soon in perspiration, and within six hours from the time of the chill effectually purged. Excepting the bath (instead of which cool water ablution was freely used) this was the treatment with which I confronted about two hundred patients that came under my care at the yellow fever hospital on Salmadina Island, near Vera Cruz, and on various ships in the naval squadron thereabout, in 1847. If, however, the bowels were open within two hours after the dose of sulphur and magnesia, which was frequently the case in the absence of constipation, the enema was omitted.

The further treatment in my own case was by the late Dr. Isaac Hulse, U. S. N., at that time surgeon of the Pensacola Naval Hospital, to whose care I was transferred in the afternoon of the same day on which I was attacked. The subsequent treatment in my case was chiefly expectant, as was that also which I practised. Dr. Hulse complimented me on my treatment of the disease, and stated as the result of his many years' experience and service in that hospital, where he had attended thousands of cases —for that hospital was the common receptacle of yellow fever patients from foreign as well as our own naval ships during a period when yellow fever was vastly more prevalent among them than in recent years—he had never known of recovery from yellow fever in any case whose bowels had not been freely open within twenty-four hours from the time of attack, and but rarely of any one whose bowels had not been open within twelve hours from the time of attack.

My subsequent experience in the treatment of yellow fever—beginning when I was but fairly convalescent from it—was comprehended within the next fifteen years, under the various conditions of infected ships, infected localities, hospital ship, and one epidemic in an unusual locality, all told about 250 cases. In the treatment of these, as of those of my earlier experience, my observation is in entire accord with that of Dr. Hulse—prompt and thorough evacuation of the bowels is the *sine qua non* for the successful treatment of yellow fever. After this, in the absence of nausea, mild saline aperients—rochelle salt, in the form of Seidlitz or otherwise, *pro re nata*. For nausea, creosote sometimes seemed to do good, as did sinapisms to the epigastrium also.

OUTLINES OF PRACTICAL HYGIENE.—BY C. GILMAN CURRIER, M. D., Associate of the American Society of Civil Engineers; Fellow of the New York Academy of Medicine; Member of the New York Pathological Society; formerly Visiting Physician to the New York City hospitals; Member of the American Public Health Association, etc., etc.—THIRD EDITION, REVISED AND ENLARGED. 8vo, pp. 492, illustrated. Price, $2.00. New York: E. B. Treat & Company.

The best elementary treatise and practical manual of hygiene hitherto issued by an American press; nor, indeed, is this limitation meant to indicate that it is inferior to any that has been issued by the foreign press, for in whatsoever particulars it may

be lacking, as compared with a few practical manuals emanating from the foreign press, it surpasses them in other particulars, insomuch that it may be safely said, taken altogether, as a first text book for the student, or manual for the sanitary inspector, it is not surpassed by any previous publication. It is a very complete and admirably arranged condensation of the accepted truths of preventive medicine, without any waste of words on questions that are still open, or speculations on irrelevant subjects. It cogently maintains a paragraph of the preface that: "The dominating principle throughout the entire text has been to maintain a judicial attitude in every detail, allowing no scope to vagaries. Accepted truths alone are embodied in the teachings. * * * Very positive opinions advanced upon any subject are rarely given unless they are those of the majority of leading thinkers. In the few cases where very limited authority exists for an opinion, attention is especially called to the fact."

The arrangement of material is inductive—twenty-three chapters: Soil and Climate; Clothing and Protection of the Body; Bathing and Personal Hygiene; Physical Exercise; Schools and Their Influence on Health; Occupation; Lighting; Buildings and Streets; Heating; Ventilation; Foods; Food Preparations and Adaptations; Diet; Water and Water Supplies; Disposal of Fluid Waste, Sewers; Home Drainage, Plumbing; Other Disposal of Human Excreta; Disposal of Garbage and other Solid Refuse; Disposal of the Dead; Bacteria and Disease; Infectious Diseases; Disinfection, Restriction of Communicable Diseases; Vital Statistics, Longevity, Degeneracy. And a copious index of twelve pages to the detail of these comprehensive chapters, embracing almost every subject in the field of preventive medicine.

THE TREATMENT OF CHOLERAIC DIARRHŒA.—Lambert Pharmacal Co., St. Louis, Mo.

A brochure of sixty-five pages, comprehending extracts from medical literature on the use of Listerine in diarrhœal compiaints generally, but particularly in the summer complaints of infants and children. The contributions to medical literature from which these extracts are taken are by professors of children's diseases, hygiene, dietetics, etc., of medical institutions of high repute, and other physicians of celebrity in the treatment of children's diseases. Prescriptions are given for the use of Listerine alone, and in combination, suited to the various conditions of in-

fantile diarrhœa. There is also a short chapter on the use of Listerine in dentistry. It is a brochure of great practical utility for domestic use.

Besides its practical utility to physicians as a ready reference for the many useful combinations of Listerine, it is a manual of practical utility to every household. There is, indeed, no medicinal preparation to our knowledge that so effectually meets complaints of one kind or another to which every family is liable as Listerine.

OLD VIRGINIA AND HER NEIGHBORS.—Two vols., 12mo. Pp. 337-416. By JOHN FISKE. Boston and New York: Houghton, Mifflin and Company.

The scope of these volumes, in the series of books on American history in which the author has for many years been engaged, as stated in the preface, "comes between 'The Discovery of America' and the 'Beginning of New England.' The opening chapter, with its brief sketch of the work done by Elizabeth's great sailors, takes up the narrative where the concluding chapter of the 'Discovery of America' dropped it. Then the story of Virginia, starting with Sir Walter Raleigh and Rev. Richard Hakluyt, is pursued until the year 1753, when the youthful George Washington sets forth upon his expedition to warn the approaching Frenchmen from any further encroachment upon English soil." The history of what follows the author promises in future works.

Old Virginia's Neighbors are the English colonies of North America, with only such special reference to Virginia as her seniority suggests.

"The Sea Kings" is the subject of the first chapter, giving enough of their personality and national characteristics to clearly distinguish the different purposes and methods of maritime enterprise and colonization of the Spanish, French and English; the different spirits animating them and the difference in the rôle of the colonies they planted, respectively, from their beginning to the present time.

"Old Virginia" follows, beginning after the plan suggested by Oliver Wendell Holmes for the cultivation of healthy life, some time before the birth, with Hakluyt's reasons why England should plant colonies on the coast of North America, to which he was urged by Walter Raleigh. All that is known about Raleigh's en-

terprise in sending out a reconnoitering ship, and subsequently two other ships with a hundred or more colonists, who reached the coast of North Carolina July 4th, 1584, and the misfortune that befel them; the judicial murder of Raleigh, at the instigation of Philip II. of Spain, and the significance of this unfortunate colony in relation to the defeat of "The Invincible Armada," is of absorbing interest as related to the daggered hand of Spain then and thenceforward.

Of the next and the earliest permanent settlement at Jamestown, May 13, 1607, and of its leading spirits, particularly of John Smith, but for whom it too would have failed, there are real adventures described in its accomplishment which are transcendantly romantic, meanwhile proceeding to establish the first principles of self-government— the Virginia House of Burgesses, in 1619. "But from the very outset the planting of Virginia had been watched with wrath and chagrin by the Spanish court." Philip's efforts to kill it, and his larger purpose of winning back England into the Roman Catholic ranks, and the tool he made of King James I. in seconding his efforts, are described, as also the wholesale massacre of the Huguenots in Florida by the Spanish, at a time of profound peace between France and Spain, previously. But these events were on the eve of the discomfiture of "The Invincible Armada," which was the beginning of Spain's decadence, that is just now in particularly lively process.

Old Virginia's neighbors extend all the way from New Hampshire to Georgia. Of an immense amount of literature concerning every phase and detail of English colonization in America— Cavalier, Puritan, Catholic and Quaker methods, conditions and contentions; conflicting grants and conflicting views of theodicity; Spanish hostility, manœuvering and murder; concentration, unity, democracy and independence—these volumes are the gist.

CONTEMPORARY LITERATURE.

MADRID AND ITS CLIMATE.

Along the Mediterranean shore Spain presents a narrow ribbon of fertile, delightful country. The region is often called "The Garden of Spain," and its inhabitants are active and industrious. In the Province of Valencia, from the city of the same name, to Alicante, garden follows close upon garden. Here are grown

wheat, wine, raisins, oranges, dates and olives. In these regions irrigation is successfully practised. The greater part of the water of the short coast streams is thus employed. Little rain falls, and what does come is dreaded because of the violence of the storms and the damage done by floods to the irrigation reservoirs.

It is a great contrast to pass from these tropical shores to the wind-swept plains of interior Spain. The level country, inclosed by the Guadarrama and the Cantabrian Mountains, forms in the west an extensive wheat-growing region. Toward the east, as the rainfall decreases, pasturage encroaches upon arable culture. In New Castile, on the south of the Guadarrama and in about the centre of Spain, the political capital has been placed. The level country in which it has been dropped, as if by accident, is for the most part a waterless plain, swept in winter by the piercing winds from the naked mountains of the north, sweltering in summer under the effect of the sun's rays on bare rock and soil. The climate of Madrid has been tersely described by its inhabitants as "three months of winter and nine of hell."—From "The Resources and Industries of Spain," by Edward D. Jones, in "North American Review" for July.

THE HUMIDITY METER.

The amount of moisture present, or the humidity of the air, is determined by a comparison of dry and wet bulb thermometers. They are both ordinary thermometers; but the bulb of the latter is covered with muslin that is wet. In the latest form of instrument the thermometers are mounted on arms carried by a shaft that is rotated by a crank which is geared to the shaft. The motion of the shaft rotates the thermometers in vertical planes and causes the water in the muslin to evaporate more or less rapidly according to the amount of moisture in the air. This evaporation lowers the temperature of the thermometer; and, from tables constructed after long experiments, the degree of moisture can be determined by the difference in temperature between the two thermometers.

The first attempt at scientific forecasting of the weather was the result of a storm which, during the Crimean War, November 14, 1854, almost destroyed the fleets of France and England. As a storm had raged several days earlier in France, Vaillant, the French Minister of War, directed that investigations be made to see if the two storms were the same, and if the progress of the

disturbance could have been foretold. It was demonstrated that the two were in reality one storm, and that its path could have been ascertained and the fleet forewarned in ample time to reach safety.—From Weather Forecasts, by E. J. Prindle, in "Appletons' Popular Science Monthly" for July.

A CRY FOR WATER.

An adequate supply of water for all purposes is a prime requisite, and that the first city of the United States in population, commerce and manufactures should be the lowest of thirty of the principal cities in an adequate water supply is an anomaly.

The need for an additional water supply is pressing in the Borough of Brooklyn, and soon will be in the Borough of Manhattan. The supply should have ample watershed, free from pollution, and be supplied by gravity, with sufficient head to supply our highest buildings. As expressed by a prominent merchant: "We now have a three-story supply for a ten-story town."

It should be within the State of New York, and duplicate existing sources, so that if one source fails, it would be supplemented by the other.

In view of the constitutional limit of taxation, if private capital will furnish an adequate supply at no higher rate than the cost under municipal ownership, it should be taken advantage of.

In the Catskill Mountains and their southern foothills we have a clear, cold, trout-stream supply, from a sparsely settled hardwood forest district, known to every fisherman, with ample volume and an elevation to afford an adequate head to reach our highest buildings, at a distance and at a cost much less than those of the Adirondacks or the Great Lakes, or any other available watershed.—From "Greater New York's Water Supply," by F. B. Thurber, in "North American Review" for July.

SPAIN AND THE HOSPITAL SHIPS.

It is greatly to be regretted that the decision of the authorities that the hospital ships shall invariably run away from the Spaniards, on account of Spain's cruel methods in war, is justified. There is no reason to believe, from anything that Spain has done or refrained from doing, either in our war or in its efforts to put down the Cuban insurrection, that a hospital ship crowded with wounded and dying men would be respected by Spanish naval or military officers. On the contrary, there is every reason to be-

lieve that the Spaniards would delight in making war upon the dying. Their reported mutilation of the marines who fell at Guantanamo is denied, but that denial does not change our estimate of the possibilities of Spanish character, judging entirely from the cruelties that they have practised in Cuba. The Spaniards are the last remnants of white barbarians, and, like their prototypes of the Middle Ages, whom they closely resemble, they have the savage instincts and methods that are found nowhere else in civilized Europe in this nineteenth century except in Turkey, and, with the exception of Spain and Turkey, are found only among the uncivilized red men of the remote regions of our own continent, and the brown and black and yellow men of Africa and Asia.—"Harper's Weekly."

PORTO RICO'S NATURAL ADVANTAGES.

By its geographical position Porto Rico is peculiarly adapted to become the centre of an extensive and flourishing commerce. The fourth in size among the Antilles, it lies to the windward of Cuba, Santo Domingo and Jamaica, and of those important commercial outlets the Gulf of Mexico and the Bay of Honduras. It is within easy reach of all the other islands of the West Indies, only a few hours' sail from the Danish colonies St. Thomas and St. Croix, and a few days' sail from the coasts of Venezuela and the United States. As a coaling station, and as a strategic centre as well, it is an all-important key to the western hemisphere. All that has been said for the oft-mooted purchase of the Danish West Indies, only sixty miles away, applies with far greater force to the acquisition of Porto Rico, with its dozen good harbors and safe roadsteads, as compared to the one miniature port of St. Thomas. In fact, the whole coastline of the island is indented with harbors, bays and creeks, where ships of the heaviest tonnage may come to anchor. Most of these ports have the additional attraction of general healthfulness and abundant water-supply. This facility of water carriage is of great importance to the Porto Ricans, who can thus safely and cheaply export the produce of their fertile hills and valleys. In a country where it does not rain occasionally for six months at a time, moreover, such abundant water-supply is invaluable for purposes of irrigation and for watering the stock.—From "Porto Rico as Seen Last Month," by Edwin Emerson, Jr., in the "American Monthly Review of Reviews" for July.

The "Review of Reviews" continues strong on war topics. In the July number the editor reviews the whole campaign up to the landing of our troops for the advance on Santiago, showing the precise part which Lieutenant Hobson's exploit had in the general scheme; Dr. William Hayes Ward treats of Hobson's career as that of the typical young American student; Mr. Edwin Emerson, Jr., the brilliant young newspaper correspondent, gives notes of his adventurous journeyings in Porto Rico last month; and Dr. Max West, the statistician and economist, summarizes "Our New War Taxes" in an interesting article. "International Cartoon Comments on Our War with Spain" and the "Record of Current Events" also cover the situation up to date.

The article on Spain and the United States, from the "Revue des Deux Mondes," which "The Living Age" has republished in translation, is by no means so bitter in its view of the American case as the expressions of the Parisian journals; but the pro-Spanish feeling is unpleasantly manifest.

HARPER'S MAGAZINE for July contains also Part VII. of Henry Seton Merriman's novel, "Roden's Corner," illustrated by T. de Thulstrup; and "The Thief," the fourth of the series of "Old Chester Tales," by Margaret Deland, illustrated by Howard Pyle. The short stories of the number are: "A Prince of Georgia," by Julian Ralph, illustrated by Albert E. Sterner, T. K. Hanna, Jr., and Harry Fenn; "A Question of Courage," by William McLennan; "Sun-Down Leflare's Money," by Frederic Remington, illustrated by the author; "A Petitioner," by Margaret Sutton Briscoe, illustrated by F. C. Yohn; and "The Story," by George Hibbard, illustrated by Albert E. Sterner. The poems of the number are by Annie Fields and Alfred H. Louis. The Editor's Study, by Charles Dudley Warner, discusses Civilization and the Fine Arts, and Mexican Love of Architecture, Music, and Flowers. The Editor's Drawer opens with "Pickled Herring," by W. W. Jacobs. The illustrations for the Drawer are by H. M. Wilder, Peter Newell, George T. Tobin, Violet Oakley and R. C. O'Neill.

The "Century Magazine" has arranged for a series of articles on the present war, somewhat in the manner of its famous "Battles and Leaders of the Civil War." The series will be entitled,

"Battles and Leaders, Places and Problems of the Spanish-American War," and a number of important articles are already promised for it.

PUBLICATIONS RECEIVED.

MASSEY.—Diseases of Women and Their Treatment by Electricity, Third Edition. The F. A. Davis Co., Philadelphia.

Early Diagnosis of Tuberculosis with Tuberculin. H. Longstreet Taylor, M. D., St. Paul, Minn.

Can Typhoid Fever Be Aborted? John E. Woodbridge, M. D., Cleveland, O.

Clinical Study of Kyofine. Sidney V. Haas, M. D., and J. Bennett Morrison, M. D. New York.

Hospitals on the Pavilion Plan. Albert Vander Veer, M. D., Albany, N. Y.

Traumatic Rupture of the Tympanic Membrane. Wm. C. Braislin, M. D., Brooklyn, N. Y.

Non-Surgical Treatment of Boils, Carbuncles and Felons. Q. Duncan Bulkley, M. D., New York.

Massage of the Abdomen. Boardman Reed, M. D. Philadelphia.

Treatment of Insanity. Peter M. Wise, M. D., President New York State Commission in Lunacy. New York.

Rœntgen Rays; Diagnosis of Pulmonary Tuberculosis, Etc. J. E. Stubbert, M. D. Liberty, N. Y.

Study and Cure of Inebriety. Presidential Address, Twenty-seventh Anniversary of the American Association. Lewis D. Mason, M. D., Brooklyn, N. Y.

New Remedies; Clinical Tests of. Seth Scott Bishop, M. D., Chicago, Ill.

Amblyopia from Suppression. Congenital Inperfection or Disease; Which, or All? Leartus Connor, M. D., Detroit, Mich

Abdominal Surgery; Surgery of the Gall Bladder and Its Ducts. H. O. Walker, M. D., Detroit, Mich.

Illinois Steel Company; Description of Works. Chicago, Ill.

Reports of Friends' Asylum for the Insane, 1898, Frankford. Philadelphia.

Deaf-Mutes: Institution for the Instruction of Deaf-Mutes, Lexington Avenue., between 67th and 68th Streets, New York.

THE SANITARIAN.

SEPTEMBER, 1898.

NUMBER 346.

A QUARTER-CENTURY OF SANITARY WORK.

1873-1898.

TOGETHER WITH A SKETCH OF ITS PRELUDES.*

BY A. N. BELL.

Mr. Chairman and Members of Michigan State Board of Health:

If your appreciation of sanitary work during the quarter century for which you have invited me to speak corresponds with my estimate of it, you will, I am confident, shortly perceive that the honor of your invitation has been most unworthily bestowed. For, while I concur with the general belief that of all the quarter-centuries since the first one of the Christian era, there has been greater progress in civilization in the present one than in any other, I venture to think, and shall endeavor to show, that of all the pursuits of knowledge that have contributed to human welfare, preventive medicine excels; and the more because it has been the chief means by which the art of medicine has been transformed into a science. Hence, while I have the courage to state this proposition, I shrink from the pretension of capability to adequately express a just appreciation of it.

Feebly as I may, I shall endeavor to show the culmination of this quarter-century of sanitary work, with which the State

* Read at the Quarter-Centennial Celebration of Michigan State Board of Health, by Dr. Henry B. Baker, Secretary of the Board (in the absence of Dr. Bell), August 9, 1898.

Board of Health of Michigan has been closely identified, by a brief summary of the preludes and forces which have contributed to it, and by particularizing some of its achievements.

The advent of cholera to England in 1831, despite the quarantine regulations which at that time obtained, gave Edwin Chadwick occasion to observe that whatever infectious property there might be in the disease, it was particularly prone to prevail under filthy conditions.

"In Poor Law administration," he said, "it appeared to me and my colleagues, on examination, that the great impending visitation would probably advance as to places chiefly on the lines and on local conditions on which ordinary epidemics proceed. I had been prepared by medical officers to take business out of its turn, because, from the state of the weather, they had a confident expectation that they would have some visitation of one of the ordinary epidemics to deal with. Asking one of them, the medical officer, what was the specific disease he apprehended, he stated that when he arose in the morning and found the atmosphere warm, moist, and stagnant, he always found that there would be an increase of some foul air disease—it might be typhoid, it might be scarlatina, it might be measles, it might be small-pox, but one species or another of eruptive disease he was sure to have in such weather in the low-lying and ill-drained districts. I asked a relieving officer of a large district—to test his knowledge of the habitat of such disease—whether, if I gave him some half-dozen cabs, he knew where, without previous knowledge, he could go and fill them with fever cases, and he said he could, just as a gamekeeper might go and get a bag of game—he said he certainly could; the cases might not be all of typhus, but fever cases of one sort or another; he knew where he could find them. It appeared that small-pox follows on much the same lines as typhus, and so does scarlatina, but with wider deviations as to classes of cases and conditions of persons. On passing through a low district I observed, 'Surely this must be a fever nest,' when out came some children with the marks of recent small-pox upon them. I remember that I was once consulted by Dr. Lyon Playfair as to the readiest mode of making a sanitary inspection of an urban district, without the medical officer's or the Registrar-General's returns, which there was no time to get out. I advised him to go into one of the primary schools, and select a group of the most squalid children, get their addresses, and go there. He told me that he had acted on this suggestion; and that, in the first school, there were two boys with particularly blotched faces, and he had found that their habitations were at the confluence of some putrid sewage. On ill-paved, ill-cleansed and filthy streets the attacks are heavy, especially amongst children."

This citation is made for a two-fold purpose: its appropriateness as showing the receptive conditions of localities common to infectious diseases everywhere, and the mistaken contention of Mr. Chadwick and his colleagues, and their successors for thirty years or more, against local filth only as sufficient protection from foreign as well as domestic infectious diseases.

It was no new thing that dirt propagated disease, but why? had never been searched for. And the good results of the energy displayed by Mr. Chadwick and his co-workers appears for the time to have stifled scientific inquiry. In two reports—1849 and 1852, respectively—the General Board of Health, following the lead of Mr. Chadwick, "sought to disparage the contagionistic medical opinions which were represented in systems of quarantine and to substitute for them a doctrine that epidemic diseases have their primary and essential condition in an epidemic atmosphere, which (irrespective of traffic) may exist over thousands of square miles, and yet effect only particular (unwholesomely kept) localities. Contending on the strength of that hypothesis that quarantine could not give any but a false security for the purpose it pretended to accomplish, and adducing illustrations of the futility and oppressiveness of quarantine as commonly administered, the Board proposed, as practical conclusion, that the country should entirely set aside the existing quarantine establishments, and should rely exclusively on the protection it could derive from a system of local sanitary improvements."*

It is especially noteworthy with reference to this pronouncement that the General Board of Health did not then have, and had not had hitherto, a medical man among its members or officers. And that it did not have a medical member until by virtue of its charge of the "Interment Act," in 1850.

Dr. Rumsey, referring to this subject some years later in the preface of his *Essays on State Medicine*, speaks of it in the following terms: "Who would have thought that in the last decade of advancing civilization, and in a nation boasting of its intellectual and material resources, of its administrative energy and efficiency, the whimsical experiment should have been actually tried of appointing three non-medical authorities—two Lords and a Barrister—to preserve the health of the living; and then, after

* English Sanitary Institutions. John Simon, p. 219.

a year or so of doubtful success, calling in a physician to bury the dead?"*

Nevertheless the public acts, 1848-1858, authorizing the war on filth, and prosecuted as it was by Mr. Chadwick and his co-workers and successors, secured a world-wide reputation for the life-saving effects of cleanliness.

It was at an early period under its auspices that, in 1839, in order that the Registrar-General might be enabled to turn to scientific use the vast quantities of detailed information flowing into his hands, and especially the facts medically certified to him as to the causes of registered deaths, William Farr, at the instance of Mr. Chadwick, had been appointed Compiler of Abstracts in his office. "Eminently," says Sir John Simon, "he was the man to bring into statistical relief, and to make intelligible and instructive to the common mind, whatever broad lessons were latent in the life and death ledgers of the great counting-house. Eminently, too, not a man to forget the practical human interest of such mathematics."† Mr. Farr's first annual report was made in 1841. He continued in office until 1879, and to him more than to any one else the nation is indebted for creating the demand for sanitary work: *The Registration of Vital Statistics.*

The particularly important events of this decennium were Dr. Farr's statistical reports of the cholera invasion and dissemination, and Dr. John Snow's first utterance, in 1849, of his theory as to the propagation of cholera by means of the intestinal discharges of the sick.

The first Medical Officers of Health in England were in virtue of acts procured by the Town Councils, of Liverpool, in 1847, when Dr. William Henry Duncan, the earliest of the medical profession to hold any such office, was appointed Medical Officer of Health of that city; and, in 1848, when the corporation of the city of London obtained like powers and appointed Dr. John Simon Medical Health Officer of that city. By him appointments of local medical officerships were initiated and the acquirement of exact knowledge as to the local distribution of diseases undertaken. In 1855 Dr. Simon's office was made the Central Medical Officership. At that time there were no statutory functions

* Op. cit., p. 211.
† Op. cit., p. 114.

of a medical kind, except as to special occasions when cholera or some other such danger might require the Disease-Prevention Act to be in force. The laws were incongruous and sanitary work unsystematic. Sundry investigations followed and many important facts were elicited contributing to the consolidation and comprehensive acts of 1871-72, changing the status of the Central authority and giving it full general powers of control and direction over all local health authorities, so that it should be able to give the public connected information on the matters in question, and making it obligatory on every local authority to have at least one Officer of Health, being a legally qualified medical practitioner, or possessing such other qualifications in medical science as shall be declared by the Central authority to be satisfactory.*

It is quite safe to say that previous to 1871, when the powers of the General Board of Health were enlarged, there had been no sanitary organization in England that would compare favorably with the Metropolitan Board of Health of New York.

Moreover, it was during this same interval, while quarantine was suspended in England, that, in 1857-1860, the health authorities and commercial bodies of this country formulated quarantine regulations that have constituted the basis of our quarantine laws since, and with which recent port sanitary regulations of England agree. Among the important incidents of the period, in England, was the introduction of yellow fever at Swansea, in 1865, by the return trip of the bark *Hecla,* a Swansea vessel, that had left Cuba July 26 with a cargo of copper and arrived at Swansea September 2d. She had a clean bill of health and was not subjected to a critical examination. Within an hour of her arrival two passengers landed with their baggage and several of the crew had left and distributed themselves about the town, and visitors were admitted on board without restraint. Within three hours from the time of arrival the hatches were removed and the discharge of the cargo began. Three of the men who were permitted to land were sick, two of whom—the captain said—were convalescent from fever, and the other one had the dropsy. The one who had the "dropsy" died the next day in the town with unequivocal signs of yellow fever. An uncertain number of cases occurred among the people of the town, fifteen of which

* Op. cit., pp. 329, 346.

were fatal. But all of the cases reported upon were traced to communication with the vessel.

Whether this misadventure had anything to do with the revival of port regulations for the prevention of the introduction of infectious diseases which had been superseded by the Chadwick regime does not appear. But the Act of 1872, under the head of Port Sanitation, provides:

Hospital accommodation for infectious diseases; means of transporting cases to hospital and officers from ship to ship; apparatus for disinfection, together with needful provision against the landing of rags or other things liable to infection from infected ports. And the Medical Officer of Health is required to take such steps as may appear to him to be necessary for the prevention of the spread of infection.

But still more explicitly with regard to cholera, yellow fever and plague, in virtue of the public health acts of 1875 and 1896, the port sanitary regulations, by order of the Local Government Board, are, excepting that in some respects they are more rigid, quite in line with the quarantine regulations of the United States.

They are in substance as follows: Every port sanitary authority, and every other sanitary authority within whose district persons are likely to be landed from ships coming from foreign ports, shall, with the approval of the chief officer of customs of the port, fix some place where any ship may be moored or anchored, and such ship shall remain there until the requirements of this order have been duly fulfilled; and shall make provision for the reception of patients and persons suffering from cholera, yellow fever and plague; and no person so removed shall leave such hospital or place until the Medical Officer of Health shall have certified that such person is free from said disease.

If any person so certified to be suffering from cholera, yellow fever or plague cannot be removed, the ship shall remain subject, for the purposes of this order, to the control of the Medical Officer of Health; and such person shall not be removed from or leave the ship, except with the consent in writing of the Medical Officer of Health.

Any person certified by the Medical Officer of Health to be suffering from any illness which such officer suspects may prove to be cholera, yellow fever or plague, may either be detained on board ship for any period not exceeding two days, or be taken to some hospital or other suitable place appointed for that pur-

pose by the sanitary authority, and detained there for a like period, in order that it may be ascertained whether the illness is or is not cholera, yellow fever or plague. The Medical Officer of Health, if he have reason to suspect any ship coming or being within the jurisdiction or district of the sanitary authority, whether examined by officer of customs or not, is infected, shall, or if he have reason to suspect that the ship has come from an infected place, may visit and examine such ship for the purpose of ascertaining whether such ship is infected; and may make the like visit and examination in the case of any ship coming or being within the jurisdiction of the sanitary authority which has come from an infected place. * * * And here follow directions for disposal of the dead from those diseases in such manner as to be without danger to any one; the disinfection or destruction of merchandise and clothing, and the disinfection of the vessel.

The master of every ship infected with cholera, yellow fever or plague shall, when within three miles of the coast of any part of England or Wales, cause to be hoisted at the masthead, or where best seen, a large flag of yellow and black, borne quarterly, and shall keep the same displayed during the whole of the time between sunrise and sunset, and no person (other than an officer of the customs or a person acting in the execution of this order) shall leave such ship until after such visit.

Moreover, it is made the duty of Medical Officers of Health, in respect of the port sanitary districts for which they are appointed, to inform themselves as far as practicable respecting all influences affecting or threatening to affect injuriously the health of crews and other persons on shipboard within their respective districts. To inquire into and ascertain by such means as are at their disposal the causes, origin and distribution of diseases in the ships and other vessels within their districts, and ascertain to what extent the same have depended on conditions capable of removal or mitigation.

By inspection of the shipping in their districts, respectively, to keep themselves informed of the conditions injurious to health existing therein, and be prepared to give advice on all sanitary points involved to the port sanitary authority.

Regulations requiring notification of infectious diseases, isolation of persons affected with such diseases, closing of schools for the prevention of their spread, infectious-diseases hospitals, under recent laws, excel ours in strictness. Besides, special regula-

tions are provided for, "for the treatment of cholera, or any other epidemic, endemic, or infectious diseases, and for the prevention of the spread of such diseases as well on the seas, rivers and waters of the United Kingdom, and on the high seas within three miles of the coasts thereof, as on land, and may declare by what sanitary authorities such regulations shall be enforced and executed."

The most important of the investigations undertaken by the Local Government Board, soon after Dr. Simon became the Chief Medical Officer, in 1871, was the *water supply.*

The results of that investigation, pursued for several years under various commissions and committees, are comprehended in a report upon "The Water Supply of Cities," by Prof. C. F. Chandler, just twenty-five years ago, at the meeting of the American Public Health Association in New York, of which the following is an abstract—on the testimony of a large number of the most celebrated physicians and chemists: "The commission declared themselves satisfied with both the quantity and quality of the water supplied by the Thames." But Dr. Frankland, Professor of Chemistry at the Royal Institution, dissented, and made some criticisms. To these Dr. H. Letheby, the Medical Officer of Health for the city of London, addressed the committee in reply: "I have to state that I cannot agree with Dr. Frankland that the water of the Thames, after receiving defecated sewage water, is unfit for domestic use; for, after a large practical acquaintance with the subject as it is observed in the principal streams and rivers of England, I have arrived at a very decided conclusion that sewage, when it is mixed with twenty times its volume of running water and has flowed a distance of ten or twelve miles, is absolutely destroyed; the agents of destruction being infusorial animals, aquatic plants and fish and chemical oxidization."

At a subsequent investigation, on the evidence of Dr. Parkes, Professor of Military Hygiene at Netley; Sir Benjamin Brodie; Dr. Odling, Professor of Chemistry at the Royal Institute; Dr. Miller, Professor of Chemistry at Kings College; Dr. Letheby again, and others, the Royal Commission again reported at great length, endorsed the previous reports, and concluded that for these reasons—the evidence as given—"We believe that the organic contamination of the Thames is much less than is commonly imagined; still it would be sufficient to do great mischief, were it

not for a most beneficial provision of nature for effecting spontaneously the purification of the streams."

This report, made in 1869, appears to have been abundantly satisfactory to Prof. Chandler, for he adds: "It has been before the British public in an accessible form, in all its details, nearly five years, and its conclusions have been generally accepted."

He gives as his reason for selecting the Thames as the chief basis of comparison with American water supplies, because it had been more carefully studied than any other source of city supply and because it may be considered an extreme case. But he also cites the sources of supply to a number of other foreign cities whose death rates from cholera and typhoid fever had been notoriously large; and "that there is generally no fear on the part of engineers and those having charge of water supplies in American cities is fully shown by the fact that many of our largest cities take water from rivers. * * * Jersey City, from the Passaic; Philadelphia, from the Schuylkill; Washington, from the Potomac; Cincinnati and Louisville, from the Ohio," and some other deadly examples which still obtain.

The report then proceeds to give the chemical analyses of a number of such river supplies, and concludes: * * * "For the supply of cities, lakes or rivers must be selected, and although rivers are the great natural sewers, and receive the drainage of towns and cities, the natural process of purification in most cases destroys the offensive bodies derived from sewage and renders them harmless. In very rare cases will organic matters be derived from swamps and peaty deposits, and except that these bodies may sometimes discolor the water, there is no sanitary objection to them."*

My purpose in citing this report of Prof. Chandler at such length is to show the consensus of medical opinion and the sum of chemical knowledge of what was considered healthful drinking water at the beginning of the era of our special consideration, and because this report was a sustaining force of one of the chief obstacles against which sanitarians have had to contend. There were sanitarians at that time fully alive to the dangers of water pollution with sewage, and especially with reference to typhoid fever, as well as cholera, as indicated by the results, but biological researches had not yet sufficiently advanced to verify those results Indeed, it appears that what Lord Bacon said of the

* Public Health, Vol. I., pp. 533-551.

medicine of his day, that it stood for judgment on quite different merits than did other learned pursuits, was scarcely less true at the beginning of this quarter-century than at the time of his utterance.

"Other arts and sciences," he said, "are judged of by the power and ability exhibited in the conduct of them by their professors, and not by success or events. The lawyer is judged by the skill of his pleading, not by the issue of the trial; the pilot by his skill in directing the course of his ship, not by the fortune of the voyage. But the physician can form no particular act by which his ability can be directly demonstrated, and therefore he is principally judged by the result, which is very unjust. For who shall decide, if a patient die or recover, whether the good or the evil is brought about by art or by accident? Whence imposture is frequently extolled and virtue decried. Nay, the weakness and credulity of men is such that they often prefer a mountebank or a cunning woman to a learned physician. So the accidents made Æsculapius and Circe brother and sister and both children of Apollo. Hence," he adds, "physicians say to themselves, in the words of Solomon: 'If it befall to me as befalleth fools, why should I labor to become more wise?' And therefore one cannot wonder that they commonly study some other art or science more than their profession, because they find the mediocrity and excellency in their own art makes no difference in profit or reputation, for man's impatience of diseases, the solicitude of friends, the sweetness of life, and the inducements of hope, make them depend upon physicians with all their defects."

With a few exceptions, this estimate of the art of medicine by Lord Bacon obtained until the eve of the quarter-century of our particular consideration. Omitting the rest, one exception is preeminently worthy of mention—Jenner's discovery of vaccination —for never was discovery more thoroughly demonstrated on a scientific basis than this, based on a considerable period of observation and repeated experiments before it was announced. It was a contribution *toward,* though not to the science of medicine. It stood alone for half a century. Though Jenner, in his lifetime, in answer to the question whether vaccination might not be a means of controlling other diseases besides small-pox, said:

"The vaccine disease, in my opinion, is not a prevention of the small-pox, but the small-pox itself; that is, the horrible form under which it appears in its contagious state is (as I conceive) a

malignant variety. Now, if it should ever be discovered that the plague is a variety of some milder disease, generated in a way that may even elude our researches, and the source should be discovered whence it sprang, this may be applied to a great and grand purpose. The phenomena of the cow-pox open many paths for special action, every one of which I hope may be explored."

Yet there was no attempt made to attenuate other diseases besides small-pox, as suggested by Jenner, until it was brought about by Pasteur's researches into the causes of certain forms of disease in French vineyards. There were earlier discoveries of bacteria by Leeuwenhœck and others, in almost every kind of organic matter in process of decomposition, but the part they played in disease was not even hinted at.

In 1840 Henle announced that the cause of miasmatic infective contagious diseases must be looked for in similar minute living organisms. He was unable to offer any satisfactory experimental proof of his theory. But his argument in favor of it created a profound impression, and from that time forward greatly increased attention was given by medical and other microscopists to all infective diseases. In 1843 Mitscherlich pointed out that as yeasts gave rise to fermentation, so vibrios in like manner must be the cause of putrefaction; and Helmholtz showed that by the use of a membrane it was possible to separate from a putrefying liquid a fluid which, under suitable conditions, would remain sterile without the application of heat or chemicals. In 1849 Pollender discovered microbes in the blood of the spleens of cows that had died of spleenic fever; this discovery recalled attention to what Henle had suggested, that these organisms were in some way etiologically connected with the outbreak of anthrax. Six years later he gave a more detailed description of his discovery, but meanwhile Davaine and Rayer described bacteria taken from the blood of animals affected with spleenic fever.

In 1857 Pasteur described a new fermenting organism which he showed had the power of forming lactic acid from sugar. For this, however, the presence of nitrogenous matter was essential, not because the elements were required for the composition of the lactic acid, but because they were necessary for the nutrition of the organism which produces it, thus throwing a new light upon the relation between cause and effect in fermentation. In 1862 Pasteur published his paper on organized corpuscles existing in the atmosphere, and by a series of experiments showed that un-

less organisms were introduced into the organic fluids from without, by some means or other, no putrefaction could take place—that is, until some organisms were present which could grow and multiply in the fluid, no evidence of organic life would make its appearance.

In this year, too, Traube showed that ammoniacal fermentation of the urine in the bladder would not take place if the access of vibrios from without were prevented; and Pasteur, after insisting upon the same fact, indicated that this fermentation might be prevented by the presence of boracic acid, and he proposed that in cases of operations on the bladder the parts should be kept irrigated as far as possible with a three or four per cent. solution of that substance.

This lucid paper of Pasteur on "Organized Corpuscles in the Air" was the prelude to Professor Lister's experiments on the antiseptic treatment of wounds, first undertaken three years after Pasteur's paper. His experiments at the first were crude and difficult of application, but with a persistence commensurate with his nobleness of purpose, after two years perseverance he had rendered them so facile and so successful in his hands that, in 1867, he insisted upon the importance of excluding special bacterial organisms from wounds.

It is no disparagement of the brilliancy of the results of following Professor Lister's practice in the application of knowledge of disease germs and germicides, drawn from the store of facts developed by sanitary work, to surgical procedure, to invite attention to the even more brilliant results that have followed the like recourse to Professor Lister's by medical practitioners. The brilliancy of the surgical results is more apparent because it is more easily demonstrated than the results of medical practice.

In 1872 Bollinger demonstrated the presence of spores in the bacillus anthracis. He also showed that if blood from a cow affected with spleenic fever were kept for some time, the rods disappeared, but the blood still retained its virulence. This virulence he attributed to the presence of spores, which, though remaining inactive under unfavorable conditions to the existence of the anthrax bacillus, still retained their vitality; and by the recurrence of conditions favorable to their development they assumed the form of the bacillus and were then capable of setting up the disease. He pointed out the important bearing of this retained vitality of germ spores on the question of infection of the soil; and,

by indicating that the so-called epidemic diseases were due to the fact that the conditions were favorable or otherwise—perhaps intermittently—for the growth and development of anthrax organisms, he not only discovered the etiology of those diseases, but, by pointing out the conditions under which the vitality of their germs were maintained, he displayed the feasibility of preventing or stamping out such diseases by sanitary work.

Closely related in substance to Bollinger's discovery were Dr. George M. Sternberg's observations on the soil in New Orleans, as reported by him to the National Board of Health in 1881. "The fact observed by myself," he says, "that during the summer months the mud in the gutters of New Orleans possesses an extraordinary degree of virulence, shows that pathogenic varieties of bacteria are not alone bred in the bodies of living animals. The more I study this subject the more probable it seems to me that in this direction lies the explanation of many problems which have puzzled the epidemiologists, and that the sanitarians are right in fighting against filth as a prime factor in the production of epidemics—a factor of which the rôle is easily understood, if this view is correct. The presence of septic organisms possessing different degrees of virulence, depending upon the abundance and kind of papulum furnished them, and upon meteorological conditions more or less favorable, proves, in my opinion, the epidemic constitution of the atmosphere, which wise men were wont to speak of a few years ago as a cloak for ignorance. It must be remembered that the gutter mud of to-day, with its deadly septic organisms, is the dust of to-morrow, which in respiration is deposited upon the mucous membrane of the respiratory passages of those who breathe the air loaded with it."

Moreover, foremost in sanitary work for the time being, in the quarter-century of our contention, was that as a whole, which the paragraph just above quoted brings to mind, the work of the National Board of Health during the period of its active existence, 1879-'81. How earnestly and successfully it battled with and stamped out the yellow fever in Memphis and New Orleans, is popular history. But this was but a mere item of its work. It promptly revised the situation and appointments of the quarantines of the Southern Atlantic and Gulf ports; established refuge stations for infected vessels; instituted sanitary inspection of vessels, railway coaches and persons at infected ports and places of departure; established a sanitary police of the lower Mississippi,

in time of yellow fever at any port or landing place thereon; required thorough cleansing, disinfection and aeration of all houses, river vessels and boats, in which there had been cases of yellow fever. To notice in detail the investigation made by Drs. Chaille and Sternberg in fevers; Drs. Wood and Formand on diphtheria; Professors Remsen and Smyth on the dangers of carbonic oxide and soil gases; Professors Mallet, Martin and Pumpelly, on the organic matter in potable water; Col. Waring and Mr. Bowditch's report on sewerage and drainage in the United States; Mr. Rudolph Herring's report upon sewerage works in Europe, and many other scientific investigations conducted under the auspices of the Board and their practical results, would require much more space than this occasion affords.

In 1875 Klebs first described the bacillus of typhoid fever, and again, with Eberth, more accurately, in 1880; in 1884 Koch demonstrated the bacillus of cholera, and Loeffler that of diphtheria; but it is needless to pursue this category, literature with which we are all familiar is filled with it. Equally important to our contention is the relation of these discoveries to measures for their prevention or destruction. Hitherto the use of disinfectants had been an art only and empyrical. Certainty of their utility awaited their application to disease germs as a test of their efficiency, and thus disinfection has become a scientific procedure. Steam had been used to a limited extent and had won the confidence of all who used it by its recognized result as an efficient disinfectant, for many years, but it was not until 1884, when Dr. Sternberg reported that by actual experiment it was fatal to all of the pathogenic and non-pathogenic organisms tested, in the absence of spores (with the single exception of sarcina lutea), at a temperature of 143.6°, which placed its use on a scientific basis, that it has since that time been generally accepted. Nevertheless, the first ship disinfection undertaken on a strictly scientific basis was with mercuric bichloride, in virtue of its known germicidal properties, by Dr. Joseph Holt in the same year that Dr. Sternberg declared the efficiency of steam. Two years afterward, however, Dr. Holt "became fully convinced of the entire sufficiency of the moist high temperature, as in itself a potential agent of the most decisive kind."* And the use of steam has since become one of the most efficient agents in sanitary work in the destruction of disease germs.

* Sanitarian, Vol. XVII., p. 331.

Antitoxins were the outcome of sanitary work by Salmon and Smith in 1886, who showed that the products of active or virulent bacilli were capable of inducing very severe symptoms or septic poisoning, so the products of attenuated bacilli, if injected into an animal, confers a degree of protection against the actions of virulent baccili almost, if not quite, as great as that obtained when the attenuated baccilli are themselves injected. This discovery, together with Sewall's observations on the immunity produced by gradually increasing doses of cobra poison, and the observations of Von Fodor and Nuttall on the bacterial action of blood and blood serum, opened up the way for the production of antitoxin serum by Behring, Kitasato, Ogata and others, 1889-90, and the antitoxin treatment of diphtheria and tetanus, which began in 1891 and has been the means of prolonging many thousands of lives.

Efforts for the protection and purification of water supplies seem to have awaited conditions somewhat analogous to the use of disinfectants—the discovery of disease germs in polluted water. At any rate, it is only since the discoveries of Eberth and Koch that chemists and engineers have become convinced that sewage is unwholesome, no matter how much diluted.

The benefit of purification methods is aptly shown by the reduction of the death rates from typhoid fever.

Death rates from typhoid fever per 100,000 population for seven years ending December, 1896:

Cities using lake water—Chicago, 71; Milwaukee, 29; Detroit, 30; Cleveland, 46; Buffalo, 34. Average, 42.

Cities using river water—Pittsburg, 84; Philadelphia, 45; Cincinnati, 49; Louisville, 74; St. Louis, 39. Average, 58.

Cities using filtered water—London, 14.4; Berlin, 7.1; Rotterdam, 5.7; Hamburg (filters put in service May, 1893), 9.7. Average, 9.1.

But there are no more striking examples than those of Lawrence and Lowell, Massachusetts:

"The city of Lawrence, with a population of 55,000, draws its water supply from the Merrimac River, after it has received the sewage from Lowell, nine miles above. The city of Lowell, with a population of 85,700, draws its water supply partly from the Merrimac River and partly from a system of driven wells. Lawrence, however, has filtered its water since September, 1893, while Lowell uses such water as is drawn from the river in its natural state.

"The typhoid fever death rates per 100,000 of population living, for these two cities since 1890, have been:

Year.	1890	1891	1892	1893	1894	1895	1896
Lowell,	158	98	90	61	55	39	42
Lawrence,	123	115	102	93	48	31	15

"The average death rates for the years 1890 to 1892, inclusive, before filtered water was used in Lawrence, were, for Lowell, 115, and for Lawrence, 113, or quite the same; while for the three years, 1894 to 1896, inclusive, during which time filtered water was used in Lawrence, the average rates were, for Lowell, 45, and for Lawrence, 31. The percentage of reduction in the rates for Lowell was 40, and for Lawrence over 72, leaving a net reduction of 32 per cent. to be credited to the filtered water of the latter city."*

Unfortunately, the protection of our water supplies, excepting Massachusetts, is not under the direction of the sanitary authorities. The excellent results in this exceptional case, as just cited, should not fail of influence on the legislative authorities to confer like power on all of the State Boards of Health.

Allied to the protection of the water supplies, however, is the protection of milk and other food supplies, which has been a signal illustration of sanitary work, State and local, so extensive and so generally acknowledged as to require no details.

Of the sanitary work in the public service, Army, Navy and Marine Hospital Services now in such prominent evidence, the co-operation entered upon at the beginning of the war is worthy of the highest praise and unqualified confidence in the joint effort to prevent the spread of yellow fever, even though it may, from time to time, under the extraordinary circumstances of the occasion, find entrance. The exceptional promptitude with which the disease was stamped out after its discovery at McHenry, Miss., May 20, is an encouraging example of energetic work.

And what may now be said of the crusade that has but just now begun, as it were, against tuberculosis, omitting any attempts to discuss that phase of it which has been in progress for several years in the destruction of cattle—further than to rivet attention, if possible, to the liability of children to *intestinal* tuberculosis, and since children are the great milk consumers—to insist upon this fact as a sufficient justification of the destruction of tuberculous

* Public Water Supplies. Hill, p. 36.

cows, and for the most rigid supervision of the milk supply by the sanitary authorities.

Every sanitarian readily recalls to mind the discovery of the fostering influence of tuberculosis by a damp soil, in 1862, by our always-to-be-remembered pioneer in sanitary work, the late Henry I. Bowditch, and recognizes the immense benefit of that discovery in the promotion of soil drainage. But our present reference is more particularly to Koch's discovery of the tubercle bacillus fifteen years ago. And since the recognition of the communicability of the disease by the inhalation of the baccilli from the dried dust of the sputum of consumptives, the question of *how to prevent* this danger with the least possible inconvenience to the afflicted is one of the most important problems of practical sanitation. That there are various means adaptable to the different conditions of exposure and the proper care of consumptives, subject to sanitary supervision, every sanitarian knows. And the salutary results are proven by the diminishing death rate from consumption wherever it has been imposed. Moreover, the restrictive measures of sanitary authorities in this regard have been an educational force among the people at large. And no persons have become more keenly alive to the danger of tuberculosis sputum than consumptives themselves, who would be the last to afflict in like manner those who are dear to them or other persons. While, therefore, their sensitiveness in this regard should always be respected, the day has gone by—even with them—when such sensitiveness should be an obstacle to the protection of human life. Consumption is no longer regarded as a family disease—much less a community disease—but a personal one: a disease that is ordinarily contracted by inhaling the dust of dried sputum, and above all by persons whose resisting powers are below par from any cause, though no person, however well, can be considered absolutely exempt from the danger of such exposure.

The *tendency* to consumption is constitutional weakness from any cause, no more likely to be "inherited" from consumptive parents than from dyspeptic parents, and not as likely from either as from the stifling air and physical restraints of some schools. Besides, the tendency to disease from these sources extends to other diseases as well as to consumption. Disease germs are beyond question the chief antagonizing force to human existence upon the earth. They belong to a great family of vegetable organ-

isms whose office in the rôle of living things is, in general, beneficent, but, as in the higher orders of vegetable organisms, some are poisonous, and these are the "pathogenic microbes"—disease germs. Of their life-history there is nothing known beyond their present aspect. No evolutionist has yet instituted inquiry into their primitive form—if they were ever of any other than as now observed—or ventured to anticipate their development in the future. Nor, indeed, has there ever been described any division of their bodies into special organs or any function beyond their self-multiplication by "fission"; that is, by division of each unit into two, and so on, ad infinitum, resulting by geometrical progression in such an enormous increase of numbers in a very short space of time—under favorable circumstances—as to defy the power of imagination to comprehend.

When we consider that an impure atmosphere is one of the most favorable conditions for their propagation, and reflect upon the facility of their reproduction and marvelous distribution, we may well wonder how is it possible to escape them. Indeed, it is impossible. But from the scientific basis on which Preventive Medicine rests, we can fight them, and though we may not be able to subdue and conquer them, we can so cultivate our powers of resistance to them as to measurably defy them.

Stamina is an educational force of primary importance to both body and mind. All understand that a pure atmosphere is essential to the maintenance of health. But, owing to the wonderful facility which the human body possesses of accommodating itself to circumstances, it frequently happens that school assemblies breathe a most unwholesome atmosphere day after day, or perhaps for weeks, without apparently suffering from it, while one after another of the pupils is continually dropping out—overtaken by some epidemic disease. English statistics, which are more complete than any others accessible to us, show that the death rate of elementary school teachers is 20 per 1,000—more than double that of soldiers on home service and four times as great as that of the police or of seamen. It is from five to six times greater than that of criminals who have no specific disease among them, in prison. And of school children, the best results obtained are from half-time schools—schools in which but half the time is devoted to mental study and the other half to physical exercise. Indeed, education without sanitation must be, *ex necessitate rei*, always unsatisfactory.

Sanitary work has been not only eminently successful in the promotion of school hygiene in the United States during the era of our consideration, so evident that he who runs may read, but it has concerned itself with eminent success in the promotion of medical education.

With but one single exception, that of North Carolina, all of our State laws for the prevention of quackery, commonly designated Medical Practice Acts, are chiefly, if not wholly, due to the influence of our State Boards of Health. With special reference to the leading spirit in the promotion of the Medical Practice Acts, the late John H. Rauch, we know of no better description of the relation of such Acts to sanitary work than the summary prefacing the Sixth (1883) Annual Report of the Illinois State Board of Health:

"Boards of Health are created and maintained for the conservation of the interests of health and life. Ordinarily their functions are limited to dealing with sanitary questions; with the removal of the causes of preventible disease and premature death. This Board, however, is also charged with the execution of the Act to regulate the practice of medicine in the State; and thus the medical profession, one of the most important agencies which is concerned with the interests of health and life, is brought within the scope of sanitary legislation. To improve the status of the individual practitioner, and to develop a well-trained and thoroughly educated medical profession, must result in increasing the value of this force in sanitary science and public hygiene; a force, which in the nature of things must always exist so long as there are physicians and patients; and the character and influence of which must always hold a direct relation to the tone, attainments, and the competency of those by whom it is exerted."

In an address Dr. Rauch delivered as Chairman of Section of State Medicine, at the session of the American Medical Association in 1886, he submitted certain propositions which he considered germane to needful action of that body in the promotion of the highest attainable standard of medical education, and in order to give practical effect to them he specifically suggested:

"That the American Medical Association should put itself upon record at that session as recommending the extension of the period of study to four years, and of attendance upon lectures to three full terms, with ample hospital practice and clinical instruction, as the requirements for graduation in medicine."

The Association did not so put itself upon record until six years afterward. But Dr. Rauch ceased not to so urge to the day of his death. At the recent meeting of the Association in Denver Dr. Rauch's suggestion was unanimously adopted by special resolutions, as hereto appended.*

Well did Tyndall observe, as a physicist twenty-three years ago: "If recent theories on the propagation of disease by germs were proved to be correct, and if the laws which govern the propagation or destruction of those germs were known, the art of the physician would be raised from dependence on empirical observation into the position of an exact science. * * * For never before," he said, "was medicine manned and officered as it is now. * * * On the old Baconian lines of observation and experiment the work is carried on. The inter-communication of scientific

*AMERICAN MEDICAL ASSOCIATION.

Philadelphia, June 30, 1898.

Dear Sir: At the recent meeting of this Association the following was unanimously adopted:

Whereas, The American Medical Association did, at Detroit in 1892, unanimously resolve to demand of all the medical colleges of the United States the adoption and observance of a standard of requirements of all candidates for the degree of doctor of medicine which should in no manner fall below the minimum standard of the Association of American Medical Colleges; and

Whereas, This demand was sent officially by the Permanent Secretary to the deans of every medical college in the United States, now, therefore, the American Medical Association gives notice that hereafter no professor or other teacher in, nor graduate of, any medical college in the United States which shall, after January 1, 1899, confer the degree of doctor of medicine or receive such degree on any conditions below the published standard of the Association of American Medical Colleges, be allowed to register as either delegate or permanent member of this Association.

Resolved, That the Permanent Secretary shall within thirty days after this meeting send a certified copy of these resolutions to the dean of each medical college in the United States and to each medical journal in the United States.

WILLIAM B. ATKINSON,
Permanent Secretary.

thought plays here a most important part. * * * While physiologists and physicians in England and elsewhere were drawing copiously from the store of facts furnished by the researches of Pasteur, that admirable investigator long kept himself clear of physiology and medicine. * * * The union of scientific minds is, or ought to be, organic. They are parts of the same body, in which every member, under penalty of atrophy and decay, must discharge its due share of duty imposed upon the whole. * * * In observational medicine one fine piece of work may be here referred to—the masterly inquiry of Dr. Thorne into the outbreak of typhoid fever at Caterham and Redhill. Hundreds were smitten by this epidemic and many died. The qualities of mind illustrated in Dr. Thorne's inquiry match those displayed by William Budd in his memorable investigation of a similar outbreak in Devonshire. Dr. Budd's process was centrifugal—tracing from a single case in the village of North Lawton the ravages of the fever far and wide. Dr. Thorne's process was centripetal—tracing the epidemic backward from the multitude of cases first presented to the single individual whose infected excreta, poured into the well at Caterham, were the cause of all."

Finally, my friends, the good time a-coming, announced by Tyndall twenty years ago, has arrived! The sanitary work of the quarter-century of our contention in correlation with the facts it has evoked in conjunction with collateral delvers into the foul soil it has cleansed, into the impure waters it has clarified, into the marshes it has drained, the air that it has screened from malignant organisms are the notes of its triumphant song in praise of sanitary methods.

HYGIENE OF INSTRUCTION.*

By G. W. Fitz, M.D., Professor of Hygiene, Harvard University.

Referring to the pressure on children in primary schools, he said:

"They are harassed by logical abstractions; by the overcrowding of the memory with unintelligible matter; by the absence of

* Abstract of remarks made at the National Education Convention in Washington, July 6, 1898.

all physical activity or by the substitution of dull and formal gymnastics, such as the Ling system, for spontaneous play; by the necessity of keeping still during the time that every other child is reciting, that is, during three-fourths of the school period; and by the sympathetic reaction of the inevitable nervous irritation of the teacher who must keep from 40 to 60 little folks doing something, if only making a show of attention, while one child is being taught.

"They are physically depressed and retarded in growth by the confinement of school hours, by the bad air universally found in school rooms and by the nervous tension of restrained activity.

NEEDS OF THE CHILD.

"The ideal school requirement must be based upon the child's need at each year of his work, and this need must be discovered and met by the school so completely as to make good the deficiencies in home conditions. The child's natural inquisitiveness, confidence in his own powers and eagerness to test them, should be made to contribute to his advancement, not crushed by the pressure of discipline. A spontaneous, free and vigorous use of the body should be assured."

Prof. Fitz thought the solution of the all-important problems of the hygiene of instruction in primary schools might be suggested in the following propositions:

First. The mental effort of which the child is capable is primarily connected with physical activity and with sense perceptions.

Second. The physical activity needed by developing childhood is not found in formal and artificial systems of exercise, but in plays and games, in the various occupation imitations of childhood and in the progressively difficult demands of well-directed manual training. These present mental, as well as physical, problems, fully adapted to the child's stages of development and insure adequate mental and physical growth.

Third. The conditions favorable to the mental development of a child of six to seven years of age are not found in arithmetical processes, but in concrete number relations; not in the science of language, but in its use; not in the use of symbols, as in reading, nor in the efforts of fine motor co-ordinations, as in writing with pen or pencil, but in drawing and picture writing on the black-

board; and pre-eminently in the fascinating study of plants and animals.

Fourth. The wholesome development of the child's nervous system depends upon maintaining his interest in school work, fostering and directing his spirit of inquiry and satisfying his love and need of activity. Substitution and suggestion must take the place of prohibition and repression. The true discipline is the self-control of interest.

Fifth. We must not be misled into demanding logical sequence or continuity from the child. Superficiality is both the safeguard and the stimulus of childhood.

Sixth. The child's increase of mental power is not in proportion to the mental effort he is forced to make, but is determined by natural physical growth.

Prof. E. R. Shaw, dean of the School of Pedagogy in New York University, in treating upon mental fatigue, said it was a question whether the investigations into it have resulted in any new guiding knowledge. They have emphasized some conclusions which were the outcome of practical, every-day observation on the part of careful teachers. The difficulty with these investigations is the terms in which the investigators propose to measure fatigue and thus determine its laws. Fatigue, he was inclined to think, must be considered or regarded as an individual thing. Studies which are difficult for one pupil are not so for another. Minds differ greatly in their power to acquire the different kinds of knowledge. Whatever kind of knowledge is difficult for a given mind to acquire, any attempt to gain that kind of knowledge is followed very quickly by fatigue.

There were a great many questions, he said, still unsettled in relation to fatigue. There was some difference of opinion as to whether gymnastics increases fatigue or whether a period of gymnastics afforded opportunity for recuperation on the part of the pupil. The conclusions, pro and con, may be due to the kind of gymnastics given. The manner of the teacher may be an important factor in causing fatigue. Pupils should, he thought, be given very short periods of intense work, this to be followed by a period of rest and recuperation. The best way in which this latter can be achieved is to give the child during these periods of recreation and repose the utmost physical freedom to do as he wishes and to follow his own bent.

CUBA AND PUERTO RICO.*

In response to the demand for information in regard to the Spanish West Indies, the following summary by the Bureau of Foreign Commerce, which will appear in the forthcoming edition of the Review of the World's Commerce, 1896-97, is printed separately in this form:

CUBA.

Consul Hyatt, of Santiago de Cuba, in a report dated January 8, 1897, and printed in Consular Reports No. 197 (February, 1897), p. 262, says that the area of Cuba is about equal to that of the State of Pennsylvania, the length being 775 miles and the width varying from 30 to 160 miles. The productive soil, mineral wealth, and climatic conditions of the island entitle it to rank among the foremost communities of the world. The soil is a marvel of richness, and fertilizers are seldom used, unless in the case of tobacco, even though the same crops be grown on the same land for a hundred years, as has happened in some of the old sugar-cane fields. The mountains are of coral formation, while the lowlands of eastern Cuba at least seem to be composed largely of fossils of sea matter from prehistoric times and are extremely rich in lime and phosphate, which accounts for their apparent inexhaustibleness.

Although founded and settled more than fifty years before the United States, Cuba has still thousands of acres of primeval forests; mahogany, cedar, logwood, redwood, ebony, lignum-vitæ, and caiguaran (which is more durable in the ground than iron or steel) are among the woods.

If all the land suitable to the growth of sugar cane were devoted to that industry, it is estimated that Cuba might supply the entire Western hemisphere with sugar. The island has already produced in a single year for export 1,000,000 tons, and its capabilities have only been in the experimental stage. The adaptability of the soil for tobacco culture has long been known. Cuba takes great pride in the quality of her coffee, and until the war the plantations were flourishing.

*Abstract of Consular Report. No. 214, Department of State.

The land is not suited to the cultivation of cereals. No flour mill, Mr. Hyatt thinks, exists on the island. The consul continues:

"In mineral wealth Cuba is capable of taking high rank. Gold and silver have not been found in paying quantities. Copper was mined at Cobre by the natives before Columbus discovered the island, and there is strong proof that native copper was carried across to Florida and used by the Florida Indians hundreds of years ago. The mound-builders of that State buried with their dead copper ornaments and utensils hammered from native copper, which always had an admixture of more or less foreign matter. As no copper ore is found in Florida, or in the United States for a long distance from there, and as that found in the United States or in Mexico does not correspond chemically with that buried with the mound-builders, it occurred to Prof. R. H. Sanders, of the Academy of Natural Sciences, in Philadelphia, that it was possible that these mound-builders had water communication with Cuba, and got their copper from here. He therefore communicated with the writer and procured a sample of native Cuban copper, which proved, upon analysis, to be identical with that used in the copper ornaments mentioned. In the early part of the present century some English capitalists purchased these mines, which are nine miles from Santiago. The books of this consulate show that from 1828 to 1840 an average of from $2,000,000 to $3,000,000 worth of copper ore was shipped annually to the United States from these mines. How much was shipped elsewhere, I have not the means of knowing.

"These mines continued in successful operation until 1867, when a combination of circumstances, and not the poverty of the mines, closed them up, and the various shafts, from 900 to 1,200 feet deep, filled with water, all save 300 feet being below the level of the sea. In later years considerable copper was taken from these mines by pumping the water from the shafts to tanks, into which iron scraps were thrown. The copper held in solution by the water deposited on the scrap iron, which in time was broken off and the iron used again. It is generally believed that large quantities of copper still remain unmined in this locality.

"The iron mines of Cuba, all of which are located near Santiago, overshadow in importance all other industries on the eastern end of the island, constituting the only industry that has made any pretense of withstanding the shock of the present insurrec-

tion. The Juragua and Daiquiri iron companies (American), with a combined capital of over $5,000,000, now operate mines in this vicinity and employ from 800 to 1,400 men, shipping to the United States from 30,000 to 50,000 tons of iron ore per month, the largest portion of which is used at Bethlehem, Steelton, Sparrows Point, and Pittsburg. The ore of these mines is among the richest in the world, yielding from 62 to 67 per cent. of pure iron, and is very free from sulphur and phosphorus. There are numerous undeveloped mines of equal value in this region.

"In the Sierra Maestra range, on the southern coast of Cuba, from Santiago west to Manzanillo, within a distance of about 100 miles, are found numerous deposits of manganese, an ore indispensable in the manufacture of steel. American capital opened a mine about 20 miles distant, at a place called Ponupo, and built a railroad to it. After shipping one cargo, the mines were stopped by the insurgents. As nearly all the manganese used in the United States comes from the Black Sea regions of Europe and a smaller quantity from the northern part of South America, it is but reasonable to suppose that the products of these nearby mines will be in great demand when the conditions are such that they can be operated in safety.

"Railroads and other highways, improved machinery, and more modern methods of doing business are among the wants of Cuba; and with the onward march of civilization these will doubtless be hers in the near future. Cuba, like other tropical and semi-tropical countries, is not given to manufacturing; her people would rather sell the products of the soil and mines and buy manufactured goods. The possibilities of the island are great, while the probabilities remain an unsolved problem."

Population.

In 1887, the number of inhabitants was estimated at 1,631,687.

Commerce.

A British Foreign Office report* from Madrid (Annual Series, No. 1851, 1897) gives the value of the imports of Cuba during the fiscal year ending April, 1896, as $66,166,754, and of the exports as $94,395,536.

The trade of the United States with Cuba since 1891 is given

*Reports by United States representatives on commercial conditions in Cuba and Puerto Rico have been meager for the past two years, owing to the absorption of the consular officers in the political conditions in the islands.

as follows by the Bureau of Statistics, Treasury Department: Imports—Totals: 1891, $61,714,395; 1892, $77,931,671; 1893, $78,706,506; 1894, $75,678,261; 1895, $52,871,259; 1896, $40,017,730; 1897, $18,406,815. Exports—Totals: 1891, $12,224,888; 1892, $17,953,570; 1893, $24,157,698; 1894, $20,125,321; 1895, $12,807,661; 1896, $7,530,880; 1897, $8,259,776.

The commerce of Spain with Cuba since 1891, the figures up to 1895 being taken from a compilation by the Department of Agriculture,* and those for 1896 from a British Foreign Office report (Annual Series, No. 2065, 1898), was: Imports from Cuba—1891, $7,193,173; 1892, $9,570,399; 1893, $5,697,291; 1894, $7,265,120; 1895, $7,176,105; 1896, $4,257,360. Exports to Cuba—1891, $22,168,050; 1892, $28,046,636; 1893, $24,689,373; 1894, $22,592,943; 1895, $26,298,497; 1896, $26,145,800.

The trade of Mexico with Cuba during the fiscal year ending June 30, 1897, was: Imports from Cuba, $363; exports to Cuba, $26,700. The commerce of the island with the principal European countries can not be given with accuracy, as the various official statistics include Puerto Rico in the statements of trade—the figures for Germany comprising other Spanish dependencies as well. The commerce of the United Kingdom, France, and Belgium with Cuba and Puerto Rico in 1896 was as follows, the figures for the United States and Spain for the same year being stated for comparative purposes:

United Kingdom—Imports, $174,187; exports, $5,843,892. Belgium—Imports, $208,304; exports, $1,089,239. France—Imports, $3,338,900; exports, $424,600. United States—Imports, $42,314,383; exports, $9,632,974. Spain—Imports, $9,681,120; exports, $33,474,680.

The tobacco crop on an average, says the consul-general, is estimated at 560,000 bales (1 bale=110 pounds), 338 bales being exported and the remainder used in cigar and cigarette manufacture in Habana. The cigars exported in 1896 numbered 185,914,000. Tobacco leaf exported in 1895, 30,466,000 pounds; in 1896, 16,823,000 pounds; the decrease being due to a decree of May, 1896, forbidding tobacco leaf exports except to Spain. About 80,000 of the inhabitants are ordinarily engaged in the cultivation of tobacco.

*Spain's Foreign Trade. Frank H. Hitchcock. 1898.

Sugar Industry.

The British consul-general gives details in regard to the sugar trade in 1895 and 1896: Exports in 1895, 832,431 tons; 1896, 235,628 tons. Stocks in 1895, 135,181 tons; 1896, 36,260 tons. Local consumption in 1895, 50,000 tons; 1896, 40,000 tons. Total production in 1895, 1,004,264 tons; 1896, 225,221 tons. Decrease in 1895-96, 779,043 tons; equivalent to 77.574 per cent.

Mr. Gollan adds:

"Cuba in normal times may be said to be one of the most favored countries of the world for the economical production of sugar. The present condition of affairs greatly burdens the sugar industry, owing to the necessity of protecting the estates, the loss of cane through incendiary fires, and the difficulty at times of getting enough hauled to the works to use them to their full capacity.

"Under normal conditions the contrast between the Cuban industry and that of the West Indian Islands, or any American sugar-producing country, is remarkable. The total sugar crop of any other island is equal only to the output of three or four of the largest Cuban manufactories, and, with the exception of Demerara, all these countries show considerable inferiority to Cuba in methods of manufacture and in the class of machinery in use. The neglect of the other West Indian planters to advance with the times is the main cause of this lack of prosperity at the present moment. Of the other cane-sugar countries of the world, Java is the only one which comes within 50 per cent. of the amount of sugar produced annually in Cuba in normal times, and Java and the Hawaiian Islands are the only ones which are generally advanced in the process of manufacture.

"Until a very recent date the manufacture of sugar and the growing of the cane in Cuba were extremely profitable undertakings, and the reasons for their prosperity may be stated as—

"(1) The excellence of the climate and the fertility of the soil, which allow of large crops of good cane. The rainfall, about 50 inches, is so distributed that irrigation is not a necessity, though it would in many cases be advisable.

"(2) The great movement toward the centralization of the estates which took place in the early eighties; planters having understood the value of large sugar-houses and overcome their difficulty in this way.

"(3) The proximity of the United States, affording, as it does, a cash market for the sugar."

In spite of the above advantages, continues the consul-general, the size of the sugar crop is a matter of surprise to many, while elsewhere the industry must be fostered by bounties. The agricultural adaptability of the country, however, counts for much; the cost of labor is low, and the sugar houses have a larger daily capacity than those of any other country.

The exports of sugar to Spain during the three years ending in 1896 are given as follows in a British Foreign Office report (Annual Series, No. 1851, 1897): 1894, 24,240 tons; 1895, 26,991 tons; 1896, 14,642 tons.

It should be noted that during the same period the exports of sugar from Puerto Rico to Spain increased from 13,000 to 18,000 tons.

Debt.

On July 31, 1895, the debt of Cuba was estimated at $295,707,264 (see Report of the Committee on Foreign Relations on Affairs in Cuba, United States Senate, No. 885, Fifty-fifth Congress). The interest on the debt imposes a burden of $9.79 per inhabitant.

Railways.

According to a report published in Special Consular Reports, "Highways of Commerce," there are ten railway companies in Cuba, the most important being the Ferrocarriles Unidos; upward of 1,000 miles of main line belong to these companies, and there are, besides, private branch lines to all the important sugar estates. The Ferrocarriles Unidos has four lines, connecting Habana with Matanzas, Batabano, Union, and Guanajay. The roads pass through the most populous part of the country and connect Habana with other lines.

The Western Railway was begun some forty years ago, and in 1891, when it was acquired by an English company, had reached Puerto de Golpe, 96 miles from Habana and 10 miles from Pinar del Rio, the capital of the province of that name and the centre of the tobacco-growing dictrict. The line has been completed to Pinar del Rio, and improvements have been made in the old part, many of the bridges having being replaced by new steel ones, the rails renewed. modern cars put on, etc.

The other companies are: Ferrocarriles Cardenas-Jacaro, the main line of which joins the towns of Cardenas and Santa Clara; Ferrocarril de Matanzas, having lines between Matanzas and Murga, and also between Matanzas and Guareiras; Ferrocarril de Sagua le Grande, running between Concha and Cruces; Ferrocarril Cienfuegos-Santa Clara, connecting those towns; Ferrocarriles Unidos de Caibarien, from Caibarien to Placetas; Ferrocarril de Puerto Principe-Nuevitas; Ferrocarril de Guantanamo.

The Marianao Railway also belongs to an English company, with headquarters in London. The original line, belonging to Cubans, was opened in 1863, but liquidated and was transferred to the present owners. The line, only 8½ miles in length, runs from Habana to Marianao, with a branch line to a small village on the coast. During 1894, over 750,000 passengers were carried, this being the chief source of revenue. The carriages are of the American type and are fitted, as well as the locomotives, with the Westinghouse automatic brake; the rails are of steel, weighing 60 pounds per yard.

Ports, Interior Transportation, Etc.

There are fifty-four ports, of which fifteen are open to commerce, and nineteen lighthouses.

The national carriage is the volante, and no other is used in the country. It consists of a two-seated carriage, slung low down by leather straps from the axle of two large wheels, and has shafts 15 feet long. The horse in the shaft is led by a postilion, whose horse is also harnessed to the carriage with traces. In case of a long and rough journey, a third horse is harnessed on the other side of the shafts in the same manner. The carriage is extremely comfortable to travel in, and the height of the wheels and their distance apart prevent all danger of turning over, although the roads in the country are, for the most part, mere tracks through fields and open land.

Ox carts and pack mules are used for conveying goods in the interior of the island, outside of the railway lines.

Cables.

There are four cable lines connected with Cuba: The International Ocean Telegraph Company has a cable from Habana to Florida; the Cuban Submarine Company has a cable connecting Habana with Santiago de Cuba and Cienfuegos; the West India and Panama Company has a cable connecting Habana with Santiago de Cuba, Jamaica, Puerto Rico, the Lesser Antilles, and the

Isthmus of Panama; the Compagnie Française de Cables Sous-Marins has a line connecting Habana with Santiago de Cuba, Haiti, Santo Domingo, Venezuela, and Brazil.

The only three towns in Cuba having cable connections are Habana, Cieufuegos, and Santiago de Cuba.

Telegraphs, Telephones, Etc.

The telegraph and telephone systems in Cuba belong to the Government, but the latter is farmed out for a limited number of years to a company called the Red Telefonica de la Habana. Nearly all the public and private buildings in the city and suburbs are connected by telephone. The Statesman's Year Book, 1898, says that there are 2,300 miles of telegraph line with 153 offices; messages in 1894, 357,914.

Cities.

The following descriptive matter is taken from data furnished to the Department by consular officers in 1896:

Habana.—Habana, the capital city of the province of the same name and of the island of Cuba, is situated on the west side of the Bay of Habana (formerly called Carenas), on a peninsula of level land of limestone formation, in latitude 23° 8′ north, and longitude 82° 22′ west, and is on the narrowest part of the island. It is the seat of the general government and captaincy-general, superior court of Habana (audiencia), general direction of finance, naval station, arsenal, observatory, diocese of the bishopric, and the residence of all the administrative officers of the island (civil, military, maritime, judicial, and economic). It is over 3,500 miles from Cadiz, 1,240 miles from New York, and 90 miles from Key West. Its strategic position at the mouth of the Gulf of Mexico has aptly given it the name of the Key of the Gulf, and a symbolic key is emblazoned in its coat of arms. The entrance to the harbor, guarded on one side by the Morro and the frowning heights of La Cabaña Fort and on the other by the Punta and Reina batteries, is narrow, but expands into a wide and deep harbor, where a thousand ships can safely ride. Habana is, or was, a strongly fortified place, surrounded by imposing fortifications, such as the Cabaña, Morro Castle, Castillo del Principe, Fort Atarés, Punta, Reina Battery, and Fort No. 4. The streets are generally narrow in the older part of the city, but outside the walls are many wide avenues. The city also contains many notable buildings, as the Cathedral, formerly a Jesuit convent, now the depository of the ashes of the immortal discoverer of Ameri-

ca; the palace of the government, fine private residences, public parks, and statues of Columbus, Fernando VII., Isabel III., etc. Habana has also its university, institute, seminary, theological and normal schools, academy of painting and sculpture, asylums; civil, military, and private hospitals; several theatres, the principal one, Tacon, being widely celebrated; a number of clubs, political, social, etc.; societies of instruction and recreation, large markets, a system of magnificent waterworks, an extensive and beautiful cemetery, sea baths, etc. Along the coast are summer places of resort, connected with the city by lines of horse and steam cars. There are many churches and convents; a commemorative chapel fronts the palace close to a large ceiba tree, under which Diego Velasquez, the founder of the city, celebrated mass in 1519. There are numerous cigar and cigarette factories, tanneries, manufactories of sweetmeats, rum, candles, gas, beer, carriages, soap, perfumery, glycerin, etc. The population of Habana, from the last official estimate, is about 220,000. Its principal exports to the United States consist of tobacco, fruit, wax and honey, sugar, and molasses. All kinds of breadstuffs, lumber, coal, and machinery are imported from the United States. The climate is generally warm and humid, and marked by two clearly defined seasons—the wet and dry, the former ranging from June to December, September and October being considered the hurricane months. The trade winds blow generally with great regularity, and the heat of the day is cooled by evening breezes.

Matanzas.—The city is beautifully situated on Matanzas Bay, on the north coast of Cuba, 60 miles east of Habana. It is divided into three parts by rivers, the principal business part occupying the central portion and extending west 1½ miles. The chief warehouses, distilleries, and sugar refineries are on the south of the river San Juan, easily accessible to railroads and lighters. The population is 49,384, and that of Matanzas Province 271,000, according to the 1893 census. The principal industries are rum distilling, sugar refining, and manufacture of guava jelly. There are railroad-car and machine shops. Sugar and molasses are sent to the United States, amounting, from 1891 to 1895, to $59,988,497. The climate is fine, and Matanzas is considered the healthiest city on the island. With proper drainage and sanitary arrangements, yellow fever and malaria would be almost unknown.

Santiago de Cuba.—Santiago de Cuba, the second city in size on the island, is probably the oldest city of any size on this hemisphere, having been founded by Velasquez in 1514. It fronts on a beautiful bay 6 miles long and 2 miles wide, on the southeastern coast of Cuba, 100 miles west of Cape Maysi. The population in 1895 was 59,614. The mean temperature in summer is 88°; in winter, 82°. It is regarded as very unhealthy, yellow fever being prevalent throughout the year and small-pox epidemic at certain times. These conditions are due to the lack of sanitary and hygienic measures; all refuse matter, as well as dead dogs, cats, chickens, etc., being thrown into the streets to decay and fill the air with disease germs. A railroad, called the Sabanilla and Marote, runs from the city to San Luis, 25 miles distant, with a branch to Alto Songo, 12 miles in length. It is largely owned and controlled by citizens of the United States. Santiago is the headquarters for three large mining plants owned by United States citizens, viz., the Jurugua, the Spanish American, and the Sigua, together representing the investment of about $8,000,000; the last named are not in operation. Santiago is the capital of the province and Oriental region. There are a number of tobacco factories, but the chief business is the exportation of raw materials and the importation of manufactured goods and provisions. Sugar, iron ore, manganese, mahogany, hides, wax, cedar, and tobacco are exported to the United States.

Cienfuegos.—Cienfuegos is on a peninsula in the Bay of Iagua, 6 miles from the sea. The depth of water at the anchorage in the harbor is 27 feet, and at the different wharves from 14 to 16 feet. The commercial importance of the place was recognized some forty years ago, and has increased with the development of the sugar industry. This port is now the centre of the sugar trade for the south of the island. It is connected by rail with Habana and the principal points on the north of the island. The population in 1895 was 24,030. Sugar and tobacco are exported to the United States, and soap and ice are manufactured. The climate from December 1 until May is dry and moderately warm, the temperature ranging from 60° to 78° during the day and falling several degrees at night. At this season almost constant winds prevail from the northeast or northwest, accompanied by clouds of dust. For the rest of the year the temperature ranges from 75° to 93°, descending a few degrees at night. During this season there are frequent and heavy rainfalls and windstorms.

The yellow fever is then epidemic. But little attention is given by the municipal authorities to hygiene or to sanitary measures. Water for household purposes is insufficiently supplied by two small plants, the principal source being the Jicotea River, 10 miles distant. The death rate is 42.82 per 1,000.

Cardenas.—Cardenas is a seaport on the north coast of Cuba, about 135 miles east of Habana. In 1893 it had 23,517 inhabitants. The temperature is pleasant during the winter, but from about the middle of May to the middle of October the weather is hot and sultry, the thermometer during the day being usually 94° in the shade and falling some 5° at night. Sanitary conditions are bad. Yellow fever, typhus, typhoid, and pernicious fevers prevail throughout most of the year, being worse in the hot season. Cases of small-pox also appear at times. Sugar is the chief article of export. The total exports to the United States in the fiscal year 1895-96 were $2,920,905; of this, sugar represented $1,872,626. About half the imports are from the United States.

Trinidad de Cuba.—Trinidad de Cuba is located on the slope of the mountain called La Vijia (Lookout), which has an elevation of about 900 feet above sea level. The port, Casilda, lies about one league to the south; the harbor is almost landlocked and has very little depth. Vessels drawing 10 feet 6 inches are liable to run aground with the least deviation from the tortuous channel. About half a mile west of Trinidad is the River Guarabo, navigable for small boats only. Four miles east lies Masio Bay, which will accommodate deep-draft vessels. The population numbers about 18,000. Sugar and a little honey are exported. The climate is very healthy, the death rate being 21 to 26 per 1,000, though sanitary measures are almost unknown. The town is so situated that the heavier it rains the cleaner it becomes. The town and vicinity are considered the healthiest in Cuba.

Sagua la Grande.—The city is situated on the Sagua River, 11 miles from the port. The export trade is confined almost exclusively to sugar. The population is about 18,000, and the climate and sanitary arrangements are superior to those of most Cuban towns.

Baracoa.—Baracoa, on the extreme eastern part of the island, on the north side, contains about 7,000 inhabitants under normal conditions. Its chief industry is the grinding of cocoanuts to extract oil. There are two establishments with a capacity of 30,000 cocoanuts daily, employing about 50 workmen. There is also a

petroleum refinery (closed at present) and a chocolate factory. Bananas and cocoanuts are exported to the United States ($628,811 worth in 1895), Norwegian steamers being employed because of cheapness as compared with United States vessels. The climate is pleasant, the average temperature being 78°; the winds prevailing during the summer are from the southeast.

Manzanillo.—Manzanillo, in the province of Santiago de Cuba, is situated on the inner part of the bay of the same name. The population, when the war broke out, numbered from 10,000 to 12,000. Exports to the United States consist chiefly of sugar, cedar, mahogany, tobacco, palm leaves, hides, etc.

Guatanamo.—The population numbers about 7,000. The city is situated 15 miles from the bay, with which it is connected by rail. The raising of sugar and coffee are the chief industries of the vicinity. Sugar and lumber are exported to the United States. The climate, cool in winter, is very warm in summer.

Santa Cruz del Sur.—Santa Cruz del Sur is situated immediately in front of the sea, the houses being sometimes touched by the waves when the tide is high. There is but one street, which extends from east to west, and is about 1¼ miles in length. The ground behind the houses is swampy and impassable. The population numbers about 1,500. Cedar, mahogany, honey, and wax are shipped to the United States to the annual value of $300,000 to $400,000. The climate may be called good, when the bad situation of the town and the lack of sanitary measures are considered. For several years there had been no case of yellow fever, but with the arrival of the Spanish troops it developed and spread widely, owing to the utter lack of hospitals and medical assistance. As soon as the troops were removed, however, the disease disappeared and the health has been good since that time, with the exception of some few cases of paludic fever, to which, it seems, the climate is inclined.

Zaza.—Tunas de Zaza is quite a small place, the population, including the part called "Magano," being about 1,500. It is the terminus of the Tunas and Sancti Spiritus Railway, springing up when the road was opened some forty years ago and having made but little progress since. Land in the neighborhood is unfit for agricultural purposes, and the supply of vegetables has to be brought by rail or boats. Water is very scarce, there being only a few badly built cisterns. Water is brought in tanks by the railway company and sold to the public at a high price; it is not al-

ways on hand, and at times there is a dearth for several days. There is a small tannery, with no modern accessories, having not even an improved mill for grinding bark. Exports consist of sugar, cedar, mahogany and other lumber, tobacco, wax, and honey. The climate in winter is pleasant, warm in the day and cool of evenings; in summer, as a rule, it is warm. There is very little sickness in the locality. Cattle raising is an important industry of the province.

PUERTO RICO.

The island of Puerto Rico, according to a recent report of the British consul (Foreign Office, Annual Series, No. 1917, 1897), has an extent of about 3,668 square miles—35 miles broad and 95 miles long. The Statesman's Year Book, 1898, gives the population (1887) at 813,937, of which over 300,000 are negroes. There are 470 miles of telegraph and 137 miles of railway, besides 170 miles under construction. According to a report by United States Consul Stewart, of San Juan (printed in Highways of Commerce), there are about 150 miles of good road on the island. Elsewhere, transportation is effected on horseback. The British report above referred to says that the telephone systems of San Juan, Ponce, and Mayaguez have recently been contracted for by local syndicates. In Ponce, a United States company obtained the contract for the material. There are one hundred stations already connected, and it is expected that two hundred more will be in operation shortly. There have been recent harbor improvements in San Juan.

Commerce.

The Estadistica General del Comercio Exterior, Puerto Rico, 1897, gives the following figures (the latest published) in regard to the trade of the island in 1895:

Imports and Value of Principal Articles.*

Coal, $119,403; iron, $224,206; soap, $238,525; meat and lard, $1,223,104; jerked beef, $133,616; fish, $1,591,418; rice, $2,180,004; flour, $982,222; vegetables, $192,918; olive oil, $327,801;

* United States currency.

wine, $305,656; cheese, $324,137; other provisions, $171,322; tobacco (manufactured), $663,464.

Exports and Value of Principal Articles.

Coffee, $8,789,788; tobacco, $646,556; sugar, $3,747,891; honey, $517,746.

The value of the total imports was $16,155,056, against $18,316,971 for the preceding year. The exports were valued at $14,629,494, against $16,015,665 in 1894. The principal increases in imports, as compared with the preceding year, were in meat, fish, olive oil, and tobacco. Decreases were noted in flour, vegetables, and wine. The exportation of coffee diminished, and that of sugar and honey increased.

The trade of the United States with Puerto Rico during the last seven years, as given by United States Treasury figures, was: Imports—Total: 1891, $3,164,110; 1892, $3,248,007; 1893, $4,008,623; 1894, $3,135,634; 1895, $1,506,512; 1896, 2,296,653; 1897, $2,181,024. Exports—Total: 1891, $2,155,234; 1892, $2,856,003; 1893, $2,510,607; 1894, $2,720,508; 1895, $1,833,544; 1896, $2,102,094; 1897, $1,988,888.

The commerce of Spain with Puerto Rico from 1891 to 1896 was: Imports from Puerto Rico—1891, $3,260,650; 1892, $4,428,891; 1893, $4,108,654; 1894, $4,164,964; 1895, $5,824,694; 1896, $5,423,760. Exports to Puerto Rico—1891, $3,305,243; 1892, $3,929,186; 1893, $4,653,023; 1894, $5,535,027; 1895, $8,572,549; 1896, $7,328,880.

The figures from 1891 to 1895 are taken from Spain's Foreign Trade, Frank H. Hitchcock, Department of Agriculture, 1898. The figures for 1896 are from a British Foreign Office report (Annual Series, No. 2065, 1898).

The imports of Puerto Rico from other countries in 1895 (according to the Estadistica General del Comercio Exterior) amounted to $6,275,693; exports, $8,766,693.

The British consul says that the principal exports in 1896 were: Sugar, 54,205 tons; coffee, 26,655 tons; hides, 169 tons; cattle, 3,178 head; timber, 30 tons; molasses, 14,740 tons; tobacco, 1,039 tons.

Owing to the troubled state of affairs in Cuba, continues the report, prices for tobacco have increased enormously in Puerto Rico. A large amount has been planted, and the crop promises well.

Cities and Towns.*

San Juan.—San Juan is situated on a long and narrow island, separated from the main island at one end by a shallow arm of the sea, over which is a bridge connecting it with the mainland, which runs out at this point in a long sand spit, some nine miles in length, apparently to meet the smaller island; at the other end, the island ends in a rugged bluff or promontory, some hundred feet high and three-fourths of a mile distant from the main island. This promontory is crowned by Morro Castle, the principal fortification of the town. At this end of the island is the entrance to the harbor, with a narrow channel and rocky bottom, so close under the headland that one can almost leap ashore from a passing vessel. The water here is some 30 feet deep. To a mariner unacquainted with the locality, or when a norther is blowing, this entrance is one of difficulty and danger. After rounding the bluff, one finds a broad and beautiful bay, landlocked and with a good depth of water, which is being increased by dredging. It is by far the best harbor in Puerto Rico, and probably as good a one as can be found in the West Indies. However, it has its drawbacks. Sailing vessels are frequently detained by the northerly winds during the winter months, and even steamers with a draft of over 20 feet are sometimes delayed; but these occasions are rare. When they do occur, the "boca," or entrance to the harbor, is a mass of seething, foaming water, and presents an imposing spectacle. To see steamers of 16 to 18 feet draft enter in a severe norther is a sight to be remembered, as the great waves lift them up and seem about to hurl them forward to destruction. At such times there is need of a staunch vessel, steady nerves, and a captain well acquainted with the channel, as no pilot will venture out. The island upon which the city stands is shaped much like an arm and hand; it is about 2¼ miles long and averages less than one-fourth of a mile in width. The greatest width is a little over half a mile in the portion representing the hand, which also contains the major part of the city. San Juan is a perfect specimen of a walled town, with portcullis, moat, gates, and battlements. Built over two hundred and fifty years ago, it is still in good condition and repair. The walls are picturesque and represent a stupendous work and cost in themselves. Inside the walls, the city is laid off in regular squares, six parallel streets running in the di-

* Compiled from data furnished the Department by consular officers in 1898.

rection of the length of the island and seven at right angles. The houses are closely and compactly built of brick, usually of two stories, stuccoed on the outside and painted in a variety of colors. The upper floors are occupied by the more respectable people, while the ground floors, almost without exception, are given up to negroes and the poorer class, who crowd one upon another in the most appalling manner. The population within the walls is estimated at 20,000, and most of it lives on the ground floor. In one small room, with a flimsy partition, a whole family will reside. The ground floor of the whole town reeks with filth, and conditions are most unsanitary. In a tropical country, where disease readily prevails, the consequences of such herding may be easily inferred. There is no running water in the town. The entire population depends upon rain water, caught upon the flat roofs of the buildings and conducted to the cistern, which occupies the greater part of the inner courtyard that is an essential part of Spanish houses the world over, but that here, on account of the crowded conditions, is very small. There is no sewerage, except for surface water and sinks, while vaults are in every house and occupy whatever remaining space there may be in the patios not taken up by the cisterns. The risk of contaminating the water is very great, and in dry seasons the supply is entirely exhausted. Epidemics are frequent, and the town is alive with vermin, fleas, cockroaches, mosquitoes, and dogs. The streets are wider than in the older part of Habana, and will admit two carriages abreast. The sidewalks are narrow, and in places will accommodate but one person. The pavements are of a composition manufactured in England from slag, pleasant and even, and durable when no heavy strain is brought to bear upon them, but easily broken and unfit for heavy traffic. The streets are swept once a day by hand and, strange to say, are kept very clean. From its topographical situation the town should be healthy, but it is not. The soil under the city is clay mixed with lime, so hard as to be almost like rock. It is consequently impervious to water and furnishes a good natural drainage. The trade wind blows strong and fresh, and through the harbor runs a stream of sea water at a speed of not less than three miles an hour. With these conditions, no contagious diseases, if properly taken care of, could exist; without them, the place would be a veritable plague spot. Besides the town within the walls, there are small portions just outside, called the Marina and Puerta de Tierra, containing two

or three thousand inhabitants each. There are also two suburbs, one, San Turce, approached by the only road leading out of the city, and the other, Cataño, across the bay, reached by ferry. The Marina and the two suburbs are situated on sandy points or spits, and the latter are surrounded by mangrove swamps. The entire population of the city and suburbs, according to the census of 1887, was 27,000. It is now (1896) estimated at 30,000. One-half of the population consists of negroes and mixed races. There is but little manufacturing, and it is of small importance. The Standard Oil Company has a small refinery across the bay, in which crude petroleum, brought from the United States, is refined. Matches are made, some brooms, a little soap, and a cheap class of trunk. There are also ice, gas, and electric light works. The climate is warm, but for three months of the year agreeable, although one is subject, from the sudden changes, to cold and catarrhs. The natives are particularly susceptible to this class of ailments, and to consumption and bronchitis.

Ponce.—The city is situated on the south coast of the island of Puerto Rico, on a plain, about two miles from the seaboard. It is regularly built—the central part almost exclusively of brick houses and the suburbs of wood. It is the residence of the military commander and the seat of an official chamber of commerce. There is an appellate criminal court, besides other courts; two churches—one Protestant, said to be the only one in the Spanish West Indies—two hospitals besides the military hospitals, a home of refuge for the old and poor, a perfectly equipped fire department, a bank, a theatre, three first-class hotels, and gas works. The city has an ice machine, and there are one hundred and fifteen vehicles for public conveyance. The inhabitants, who number about 15,000, are principally occupied in mercantile pursuits; but carpenters, bricklayers, joiners, tailors, shoemakers, and barbers find good employment. The department of Ponce counts about 40,000 inhabitants. The chief occupations of the people are the cultivation of sugar, cocoa, tobacco, and oranges, and the breeding of cattle. Commercially, Ponce is the second city of importance on the island. A fine road leads to the port (Playa), where all the import and export trade is transacted. Playa has about 5,000 inhabitants, and here are situated the custom-house, the office of the captain of the port, and all the consular offices. The port is spacious and will hold vessels of 25 feet draft. The climate, on account of the sea breezes during the day and land

breezes at night, is not oppressive, though warm; and, as water for all purposes, including the fire department, is amply supplied by an aqueduct, it may be said that the city of Ponce is perhaps the healthiest place in the whole island.

Mayaguez.—Mayaguez, the third city in importance of the island, is situated in the west part, facing what is generally known as the "Mona Channel." Of industries there is little to be said, except that there are three manufactories of chocolate, which is for local consumption. Sugar, coffee, oranges, pineapples, and cocoanuts are exported largely—all, except coffee, principally to the United States. Of sugar the muscovado goes to the United States and the centrifugal to Spain. Mayaguez is the second port for coffee, the average annual export being 170,000 cwts. The quality is of the best, ranging in price with Java and other first-rate brands. The lower grades are sent to Cuba. About 50,000 bags of flour are imported into this port every year from the United States, out of the 180,000 bags that are consumed in the whole island. The population is nearly 20,000, the majority white. The climate is excellent, the temperature never exceeding 90° F. The city is connected by tram with the neighboring town of Aguadilla, and a railroad is being constructed to Lares, one of the large interior towns.

Aguadilla.—The city, which is the principal town and the port of Aguadilla District, in the northwest portion of the island, has 5,000 inhabitants. Industries in the vicinity consist of the cultivation of sugar cane, coffee, tobacco, and cocoanuts, and the distillation of rum from molasses. In the town are three establishments for preparing coffee for exportation. The climate is hot, but healthy; there is hardly ever yellow fever.

Arecibo.—The town, of from 6,000 to 7,000 inhabitants, is situated on the north coast of Puerto Rico, facing the Atlantic Ocean and some 50 miles distant by rail from San Juan. It is similar to all Spanish towns, with a plaza surrounded by the church and other public buildings in the centre, and streets running from it in right angles forming regular squares. The buildings are constructed of wood and brick. The harbor is poor, being nothing more than an open roadstead exposed to the full force of the ocean; in which vessels during northerly winds can hardly lie in safety. Close in shore, on one side, dangerous reefs stretch, a constant menace to vessels if the anchor does not hold. Into this harbor empties a narrow and shallow stream called the Rio

Grande de Arecibo. Goods are conveyed on this river to and from the town in flat-bottomed boats, with the aid of long poles and by dint of much pushing and patience. At the bar of the river everything is again transferred into lighters, and thence to vessels. It is a tedious and expensive process. However, Arecibo is quite an important port, and has tributary to it a large district of some 30,000 inhabitants. The want of good roads in the island makes such a place as Arecibo far more important than it would naturally be.

Fajardo.—The town, on the east coast of the island, has a population of 8,779, according to the last official statistics (December, 1887). The port is handsome, with a third-class lighthouse at the entrance at the point called Cabezas de San Juan, and a custom-house open to universal commerce. The town is about 1¼ miles from the bay. The only important industry of the district is the manufacture of muscovado sugar, to which most of the planters devote themselves. Shooks, hickory hoops, pine boards, and provisions come from the United States in considerable quantities. Sugar and molasses are exported, and occasionally tortoise shell. The climate is temperate and healthy.

Naguabo.—Naguabo (on the east side) is a small town of only about 2,000 inhabitants, and in the harbor there is another smaller place, called Playa de Naguabo, or Ucares, with about 1,500. The capital of the department, Humacao, is nine miles from Naguabo, and has 4,000 inhabitants—the district comprising more than 15,000.

Arroyo.—Arroyo, in the district of Guayama (southeast portion), is a small seaport of about 1,200 inhabitants. The annual exports to the United States average 7,000 to 10,000 hogsheads of sugar, 2,000 to 5,000 casks of molasses, and 50 to 150 casks and barrels of bay rum.

VIEQUE.

The island of Vieque, situated 13 miles east of Puerto Rico, is 21 miles long and 6 miles wide. Its land is very fertile and adapted to the cultivation of almost all the fruits and vegetables that grow in the West Indies. Cattle are raised and sugar cultivated. It has a population of some 6,000. The town, Isabel Segunda, is on the north, and the port is unsafe in times of northerly wind, like all the anchorages on that side; the few ports on the south are better, the best being Punta Arenas. Not long ago there

were two importing and exporting houses on the island of Vieque; but, on account of the long period of drought and the high duties on foreign-imported goods, trade has decreased to local consumption only. All supplies are brought from San Juan, the majority being of American origin. The climate is fine and may be considered healthy; there have never been any contagious diseases.

Shipping of Puerto Rico in 1895—Total vessels, entrances, 1,077: tonnage, 1,079,236. Clearances, 1,070 vessels; tonnage, 900,379.

THE BARBER SHOP AS A MENACE TO HEALTH.*

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It seems that the time has arrived when the attention of this association, and through it that of public health authorities in general, should be called to that part of personal hygiene which applies to the barber shop.

It is astonishing that while the sanitary relations of most, if not all, other public occupations have been investigated to the minutest detail, and salutary restrictions, in many instances of the most rigorous character, have been imposed to protect the public interest, the first attempt to regulate the operation of the barber shop and to apply to them the rules of sanitary administration has been made within the month just past.

That this common mode of infection should have for so long escaped authoritative attention in these days of asepsis and antisepsis may be noted as one of the most contradictory circumstances of our times.

To point out the necessities for reform in this respect will be the purpose of this brief paper, and the writer does not expect to do more than furnish a text for such remarks or such action on the part of the association as will tend to bring the subject proper-

* Read at the annual meeting of the American Public Health Association, Philadelphia, October 27, 1897.

ly to the notice of local health authorities, who alone have the power to act in such premises.

Historically, the barber has, from a very remote period of antiquity, held an important station among the occupations of the world. He was, in a certain sense, the progenitor of the surgeon and the dentist of the present day, and in ancient times was invested with professional rights and privileges by government sanction which might well excite the envy of his offsprings. To him was given the exclusive right to practise phlebotomy, which was until a somewhat recent date regarded as the most effective therapeutic agent known for the alleviation and cure of most of the diseases to which the human race is heir. Then, as now, the barber shop was a "focus of news" and "the favorite resort of idle persons," and the professional barber and hair dresser enjoyed the worldwide reputation for gossip and garrulity which is so familiar to us all.

By act of incorporation they were made "professors of the healing art" in England in 1461 during the reign of Edward IV., and so continued during the reign of George II. (A. D. 1726-1760), when the barber and surgeon were formally divorced.

We have some reason to believe that even in the remote periods mentioned attention was given to the subject of sanitation in the selection and arrangement of the utensils made use of in their professional employment. Cleanliness was invariably provided for, a fact which is instanced by the symbol of the brass basin which has, for all time, been suspended from the striped pole which still constitutes the sign of the barber in many countries. This brass basin was always made with a crescent-shaped space cut into the side to receive a man's throat and thus prevent the soiling of clothes with the lather and other substances which were applied in the operation of shaving the beard. Again, it is worth noting that even in ancient Greece and Rome, barbers and *bathers* were associated in their labors and rivaled the physicians of that period in the practice of their art. Later on, in France, the "Society of Barbers and Bathers" was accorded the privilege of practising all sorts of surgery in spite of the protests of the regular surgeons. Barbering and bathing are to some extent associated in our time, but not to the extent comprehended by the subject of these remarks, it is a matter of regret to state.

If, as we presume, the sanitation of cleanliness was observed by the barber surgeons of medieval France, the system must have

degenerated to the present date, for, as was above mentioned, the first attempt of modern times to regulate sanitarily the operations of the barber shop was recently made in the city of Paris. As a police regulation and by direction of the sanitary authorities, an order has been promulgated requiring that specific rules of asepsis and disinfection shall be observed in all shops for the protection of the public. These directions include the use of only metal combs, in order that they can be easily sterilized, and that, as far as possible, all instruments shall be of metal; that the razors, clippers, scissors, combs, and the like, shall be subjected to a heat of 100° centigrade before and after use; that the shaving brushes must be washed before and after use in boiling water, and that the hands of the barbers shall be thoroughly cleansed before passing from one customer to another. They are required to use sterilized towels and pulverizers in place of the common powder puffs, and the hair that is removed is to be disinfected and promptly taken from the room. Chemical solutions are also prescribed, for obvious purposes.

The writer is not informed as to the method by which it will be made certain that these regulations will be faithfully observed, but doubtless a system of inspection will be inaugurated under police surveillance which will insure detection in case of non-observance and the proper punishment of all offenders.

When advised of the promulgation of this order by the Paris Health Department, the thought at once occurred that the same might well be universally adopted as an important reform in the matter of local sanitary administration. As individuals we are constantly reminded of the grave personal dangers which threaten the patron of the average barber shop, and many of us have long since adopted measures of prevention for self-protection. The writer's experience does not differ from that of many others who have professional knowledge of the communicability of pediculi and disease. The magnificent (?) beard which he now presents to your view is the result of an occasion when a characteristic danger was imminent. One evening several years ago a sheepish-looking individual shuffled his way into my office waiting-room and requested a prescription. He was observed to be suffering from syphilis and presented a most unattractive appearance; his face was literally covered with eruptions and his mouth and lips were ulcerous in a high degree with the form of manifestation known as "mucous patches." His hair was fast falling,

and in short he was a perfect focus of infection. His case was disposed of and he was gladly dismissed.

Having to take an early morning train, I shortly afterward proceeded to the barber shop to prepare for my toilet. My barber's chair was occupied and I sat down to await my turn. As the occupant was about to arise I was startled to observe the very patient for whom I had prescribed an hour previous!

It is needless to say that I took my departure, although I was obliged to exercise some *finesse* in order to avoid exposing the professional secret that had been confided to me. Neither did I dare, for the same reason, to offer any suggestion for public protection. Instances with this latter feature, in this and other relations, are constantly occurring to physicians, as all who listen will appreciate.

Then and there I resolved that my face should never again be shaved by a barber, and the result is apparent. I also adopted a plan for my occasional visits to the barber shop for the trimming of hair and beard. Carrying always a packet containing shears, comb, brushes and clippers, I insist that everything be removed from the chair, clean towels be substituted and that the barber thoroughly wash his hands before proceeding; and for all this I tender him (beforehand, if a stranger) a fee so large that he cannot complain of what ordinarily seems to him a hardship. The only inconvenience I experience is, that among the tonsorial fraternity of my vicinity I am compelled to bear the somewhat unsavory name of the "champion crank of the town."

This item of personal observation is introduced to direct attention to only one phase of the many dangerous situations which will readily occur to the sanitary mind, and it seems entirely unnecessary in this presence to attempt to elaborate this simple note of warning and protest by offering illustrative examples.

Instances almost without number might be collected and presented to prove the transmission of various diseases by the methods commonly practised in tonsorial operation. Pages might be written from the scientific standpoint to show the prevalent violation of well-established hygienic principles and the possibilities of parasitic and bacteriologic communication. Such an effort would be a work of supererogation indeed. The assumption is quite warrantable that there is scarcely a step in the processes usually employed by the barber which does not carry an element of danger when the most careful precautions are not observed.

There is probably not a physician of considerable experience who could not cite examples which have occurred in his observation to support the argument presented, but it may well be doubted whether even with such precautions as might, and sometimes are, made use of in the ordinary way, such articles as combs, brushes and sponges would still be unclean and capable of conveying vitalized elementary substance from one person to another. Take the matter of sponges, for example. No surgeon thinks of using one a second time, unless it is passed through a process of disinfection requiring an amount of time and labor which more than covers the cost of a new one, and yet in many, if not most, barber shops the same sponge is repeatedly used from face to face, with nothing more than a simple squeezing between each sitter, which cannot remove the infected blood or pus from the often broken or eruptive cuticle.

In the opinion of the writer it is absolutely impossible, no matter how good may be the intention, to properly cleanse and sterilize any of the instruments employed without consuming an amount of time and material which would render such an effort impracticable. Hence it appears that nothing short of such compulsory regulations as have been adopted by the Paris authorities would be effective. Local administration of this character should be made to apply to every barber shop, whether rural or urban, and a system of inspection established to enforce the rules. There will be found in many localities some items which the Paris regulations do not seem to cover, such as the particularly dangerous use, from patron to patron, of the alum stick to staunch the flow of blood from the cut cuticle, the common use of the block of magnesia to complete the drying of the newly shaven skin, both of which articles sometimes do continuous service for weeks for the occupants of the same chair. Of course these remarks do not apply to all shops, as many of them are kept as cleanly as is possible without scientific disinfection, and most of the better class of barbers would gladly join in the movement of reform if a proper opportunity were offered.

The Legislature of the State of New York has had, for a year or two past, a proposition pending for the enactment of a law which would, in a great degree, serve to correct many of the evils referred to here. This bill emanates from a representative organization of the barbers themselves and has the uniform support of all the better classes among them. They desire the law for

self-protection and to elevate the general character of their business. By the provisions of the proposed regulation a board of examiners will be appointed, which will proceed to qualify the members of the trade by systematic examinations of such a nature as to demonstrate the fitness of each individual applying for a license, and no one can practise except he is so qualified. It is understood that the knowledge of the scientific rules for disinfection and general sanitation will be an integral part of the requirements. This measure will be pushed during the coming session, and the Barbers' Association will receive the support and active aid of the medical societies. Should it be enacted and health boards in general promulgate the rules of asepsis and disinfection by which to enforce the provisions of the law, nothing more can be desired.

It is understood that in Germany the general regulations for the licensing by examinations of all occupations in great part solves the problem of sanitation in barber shops, as only those are licensed who are especially qualified from all points of view. Such a system should be made applicable in all states and countries. Horseshoers are thus qualified in the State of New York, and why is it not just as important to regulate barbers in the same manner?

It is remarkable that since this information has come to us from abroad the medical journals and newspapers are teeming with commendatory comments, and wonder is often expressed why this subject has been for so long officially unnoticed. Without doubt the people will be quickly educated to the necessity for action and the efforts of health boards will be supplemented and facilitated by favorable public sentiment.

Let us adopt for our motto in this respect the Spanish proverb, "*Dicho y hecho*" (no quicker said than done), and with the greatest promptitude practicable demand that an intelligent and unprejudiced inquiry be made into this fruitful source of disease transmission, to the end that the fundamental principles of sanitary science may be made to apply to it as well as it does to many less threatening situations.

If the surgeon and the dentist are morally and, in a negative sense, legally, under obligations to disinfect and sterilize in all cases their instruments before using them, why is it not just as reasonable to hold a barber equally responsible for neglect of such precautions? And why should it not be properly within the

province of Health Boards to protect the public in this regard, and quite within the jurisdiction of this association to add its powerful influence toward the promotion of the means for the accomplishment of this much-to-be-desired reform? We are constantly striving to regulate the disinfection of railroad sleeping cars, passing ordinances to subvert the dangers of the spitting nuisance, loudly demanding the substitution of the individual for the common communion cup, and in divers other fields are endeavoring to compel the proverbially heedless public to have a care for their own welfare, but it may well be said that the hygienic regulations of the barber shop far exceeds in importance the most of these undertakings.

MEDICAL EXCERPT.

By T. P. Corbally, A.M., M.D.

Lesions of Cerebral Cells.—M. Ballet, in a very important communication presented to the Académie de Médicine ("Le Progrès Medical," 2d of July), has given the results of his studies of the histological lesions in cases of so-called mental confusion (psychose polynevrite) of Karakoff. It is only within a few years back that the polynevritic mental confusion attendant on the delirium of organic degeneration and the melancholic stupor of Baillarger and some other analagous conditions have been accurately pointed out. This syndrome, or combination of symptoms, is characterized by mental disturbance curable in general, but followed often by a weakening of the intellect or by complete dementia. The beginning of the disease may be very sudden or of very slow and insidious progress. The predominating trouble is the confusion of ideas; the perceptive faculties are weakened, and want precision; the mind is a prey to indecision. The attention becomes irregular, inconstant; the memory is defective and confused; the will is liable to become indifferent or capricious, stubborn, irascible. Attacks of hallucination are frequent—faulty sense (dysæsthesia) or erroneous imagination are not uncommon. The conceptions may be of a delirious character or they are vague and changeable, ordinarily assuming the form of hypochondria. This inevitable confusion of ideas generally follows some infection or some form of mental or physical intoxication; these may be ty-

phoid fever, variola, grippe, cholera, pneumonia, erysipelas, puerperal infection, excessive physical or moral fatigue. The etiology and the clinical history of the disease prove that this affection is dependent on lesions of the cerebral substance. Until lately, it is true, only moderate lesions have been discovered as thickening œdema of the piamater, hemorrhage, in form of small punctures in parts of the brain, atrophy of the myeline fibres of the brain substance.

M. Ballet has had occasion to make autopsies of two cases, one aged about thirty-two years, an alcoholic with symptoms of tuberculosis, and the other enlargement of the liver; these patients presented all the symptoms that usually accompany this mental confusion. He has already presented to the Société Médicale des Hopitaux his study of all the important features in the first case. In the second, which he studied according to the method of Nissel, it will be seen that a slight increase in the size of the large pyramidal cells have undergone more or less alteration; they are rounded, their prolongations are less accurately defined, the protoplasm and the central portion have lost their reaction.

In addition to a great enlargement, the cells appear almost all diseased; they are tumefied; their contours are rounded; their prolongations are no longer perceptible or they have almost entirely disappeared; they have but very few chromatic granulations and are in a state of pygmentary degeneration. Contrary to former belief, it may be seen that in patients presenting symptoms of mental confusion the cells are affected with very grave lesions. These lesions may be attributed to a multiplicity of infections. In the two case mentioned the intoxication or active cause was tuberculosis, hepatic enlargement, alcoholic intoxication.

It is to this last cause that they most probably belong.

INJECTIONS INTO ERECTILE TUMORS.—M. Theophile Anger ("La France Médicale," 8th July) uses the following solution:

Perchlorure de fer at 30°	25 grams
Chlorure de Lodium	15 grams
Aqua	60 grams

This is really the formula for the liqueur of Piazza, which has a certain coagulating effect and its injection is not painful.

Four years ago the doctor substituted three grams of chlorure de zinc for the fifteen grams of chlorure sodium, but the solution was rather caustic and painful, and it is now seldom employed.

The dose varies from twenty to forty drops, according to the size of the tumor.

It is necessary to take special care to isolate the periphery of the tumor with some kind of ring, carefully applied and maintained in place for at least fifteen minutes, when the clot becomes well defined under the finger.

The tumor increases in size for some hours after the injection, and finally disappears.

PHENOMENA PECULIAR TO THE TOES.—M. Babinski has studied a peculiar action of the toes which he describes ("Gazette Hebdomadaire," 3d July), as follows:

He reported a modification in the form of the reflex action of the cutaneous element of the plantar surface, consisting in the fact that the excitation of the plantar surface of the foot, instead of producing, as in the normal condition, in the adult, the flexion of the toes on the metatarsus, causes an extension.

This disturbance, which I have pointed out under the term "phenomena of the toes," seems to be influenced by a disturbance of the function of the pyramidal system, and is a cerebral or cerebro-spinal affection.

I have observed it in cases of hemiphlegia of organic origin, whatever the cause may have been, in cases of diffuse meningo-encephalitis, of partial epilepsy, of cerebro-spinal meningitis, of poisoning with strychnine, of spasmodic spinal paralysis, no matter what may have been the cause, of meningo-myelitis in Friederich's disease.

I would now direct the special attention of the Society to a very important clinical point. This phenomena of the toes may be the first and the only marked indication of a grave disturbance in the pyramidal system.

SANMETTO, LISTERINE AND CHLOROFORM.—"Three great blessings to suffering humanity. Sammetto and Listerine being as great as chloroform." H. Drennan, M. D., Verdery, S. C.

Horsford's Acid Phosphate, besides being an effective tonic in nervous exhaustion brought on by overwork or other cause, is, in half ounce doses, added to a tumblerful of cold, effervescing water, a delightful and exhilarating summer drink, and with a raw egg added and well shaken, the best of all substitutes for beer; it allays thirst and satisfies the cravings of indigestion.—Ed. SANITARIAN.

THE MEDALS, JETONS AND TOKENS ILLUSTRATIVE OF SANITATION.*

By Dr. H. R. Storer, Newport, R. I.

X, XIV. *Phthisis.*

Canada.

The following may perhaps be mentioned in this connection:

2627. Obverse. Baume Rhumal | The Great | (scroll) | French | Cough Specific | Patented in France In 1891 | L. R. Baridon | Proprietor | (scroll) Montreal, Que. Reverse. Within beaded circle: Patente | Au Canada (scroll) | En 1891. Inscription: Si Vous Toussez Prenez Le | Baume Rhumal 18.27 mm. Edges beaded. Breton, Coins and Tokens relating to Canada, 1894, p. 96, No. 664, fig.; Storer, *loc. cit.*, July, 1894, No. 734.

England.

Dr. Hermann Weber (1823-), of London.

Hygienic and Climatic Treatment of Phthisis (Croonian Lecture), 1885.

2628. Obverse. Bust, facing and slightly to left. Over shoulder, at right: Alphée Dubois | 1893 Inscription: Hermann Weber, M. D., F.R.C.P. London Reverse. Within a garland of flowers, supported by seven nude dancing children, a bee-hive between rose branches. Below it, transversely, the staff of Æsculapius. Between them: Ætatis . Suæ . LXX Upon lower edge, at left: F. Bowcher. F Silver, bronze. 18.27mm. Weber, Num. Chronicle, July, 1894; *Ibid.*, English Medals by Foreign Artists, p. 29, No. 84; Storer, *loc. cit.*, July, 1895, No. 899. In the Brettauer collection, and my own, the gift of Dr. F. P. Weber.

2629. Obverse. As preceding. Reverse blank. Bronze. 18.27mm. Storer, *loc. cit.*, July, 1895, No. 900. In my collection; the gift of Dr. F. P. Weber.

2630. Obverse and reverse as the last but one. Bronze. 92.145mm. The two faces cast together by Mr. James Moore, of

*Continued from page 155.

Thames Ditton, Surrey. Weber, English medals, p. 29, No. 83; Storer, *loc. cit.*, July, 1895, No. 901.

2631. Obverse as preceding. Reverse blank, save: E. Gruet Jne Fondeur Paris. Bronze. 92.145mm. Storer, *loc. cit.*, July, 1895, No. 902. Communicated to me by Dr. Weber.

2632. Obverse. Bust, to left. Upon shoulder: 1894 In front, upon a plicated scroll: F. Bowcher | Fecit Inscription: Hermann x Weber x MxDxFxRxCxPx London Reverse. Æsculapius seated, with staff, serpent, and recumbent hound. Before him, Apollo, with head irradiated and laurel branch, Hercules with club (both of them nude), and Ceres, with ear of wheat. Inscription, with the words separated by three horizontal wands of Æsculapius, incused: Weber - Parkes - Prize - Medal Exergue: Prevention . And . Cvre | Of . Tvbercvlosis Upon rim: Bronze VI — Specimen Silver, bronze. 32.50mm. Storer, *loc. cit.*, April, 1897, No. 1121. In my collection, the gift of Dr. F. P. Weber. It was founded by Dr. H. Weber at the Royal College of Physicians in 1894, in memory of Dr. E. A. Parkes (see Nos. 57 and 1667). It was first given in 1897 with 150 guineas, and is to be afterwards triennially, for the best essay upon some subject connected with the ætiology, prevention, pathology, or treatment of tuberculosis, especially with reference to pulmonary consumption in man. A medal is also to be awarded to the second candidate. In the event of essays failing, the Royal College of Physicians may award the prize for what they consider the best recent book on the subject.

2633-40. The series of eight "Touch-pieces" for scrofulous diseases should here be mentioned. Storer, *loc. cit.*, October, 1897, Nos. 1196-1203.

GERMANY.

Dr. Robert Koch (1843-), of Berlin.

Besides Nos. 2037-42 and 2284, there is:

2641. Obverse. Bust, three-quarters to right. Inscription: Professor Dr. Robert Koch. Reverse. Within cabled circle and between two laurel branches, the staff of Æsculapius. Legend: Ut Sementem Feceris, Ita Metes Exergue: three rosettes. Silver. 18.28mm. Edges beaded. Somewhat similar to No. 2040, but smaller. In the Government collection and my own.

2642. Obverse and reverse as those of No. 2284, save that instead of Lunge | Kraftig, there is Lunge | Sehr | Kräftig. Brass. 13.20mm. In my collection.

X, XV. *Syphilis.*

The United States.

2643. Obverse. Inscription: Dr . Bohannan's Medical Office 63 Pine St. St. Louis, Mo.*| Entrance | Front & Rear | Where All Secr -| Et Diseases, Such | As Syphilis, In Its | First & Second St -| ages, Gonorrhoea, | Gleet Stricture | Inflammation | Of The | Bladder Reverse. Within wreath of laurel: Impotency | Diseases Of The | Bones, Mercurial | Disease, Scrofula | Eruptions Of All | Kinds No Matter | How Long Stand-| ing All Effect-| ually Cured | By Dr. B White metal. 21.33mm. Storer, *loc cit.*, July, 1896, No. 1012. In the Betts collection.

England.

Mr. Alexander Bruce (1842-69), of London.

I previously intimated that this medal exists, but was then unable to give its description.

2644. Obverse. Bust to left, three-quarters facing. Inscription: Alex. Bruce Alvmn. Egr. Ob. Apr. 1869 Anno Aet. 27 Reverse. Within laurel wreath: Awarded | To At base: L C Wyon Inscription: For Proficiency In Surgery and Pathology. University of London Gold. 27.43mm. Storer, *loc. cit.*, April, 1893, No. 611. Memorial prize at University College, founded by his mother. I have the description from Mr. A. H. Lyell, of London.

Dr. John Hunter (1728-93), of London.

In addition to Nos. 1143-3a-4, 1841-2, 2043-4, and 2286, there are the following:

2645. Obverse. Similar to No. 2044, save that neck is shorter, and beneath there is: A Wyon After B Wyon Reverse. The arms, crest and motto of Yorkshire College, surrounded by scroll work. Inscription: Collegium Comitatus Eboracensis. Schola Medicinæ Upon rim, name and date, engraved and: Multorum Honorum Cumulus. Gold (value, £10). 24.37mm. Instituted in 1892. Storer, *loc. cit.*, April, 1894, No. 731. I have the description from the Dean of the College, Dr. Thomas Scattergood, of Leeds.

2646. Obverse. Bust to left. Upon shoulder: J. C. Wyon F. Exergue: John | Hunter Reverse. Oak branches tied by rib-

bon. Inscription: Collegial Triennial Prize | MDCCCLXV Gold (value, 50 guineas), bronze. 46.72mm. Storer, *loc. cit.*, April and July, 1895, No. 879. Collegial award (triennial) of the Royal College of Surgeons of England. I owe wax casts to Mr. Edward Trimmer, Secretary of the College.

John Hunter is also mentioned upon the medal of Mason's College, Queen's Faculty of Medicine, Birmingham.

Dr. Sir William Lawrence (1783-1867), of London.

Besides No. 2045 there is:

2647. Obverse. Within ornamental border, head, facing. Inscription: William Lawrence, 1783-1867 S. Bartholomews Hospit. Reverse. Within ornamental border, a nude youth, erect and facing, between two shields on which he rests his forearms. Upon the shields in Greek: Aien | Aris | teue | in, which are whispered into his ears by draped crouching females on each side. who stretch their heads across the shields. Gold, cast and chased. 35.54mm. Storer, *loc. cit.*, July, 1897, No. 1143. To be annually conferred. At the Royal Academy Exhibition of 1897. Communicated to me by Dr. F. P. Weber, of London.

2648. As preceding, but larger. Plaster of Paris. At the Academy Exhibition.

Holland.

Dr. Hermann Boerhaave (1668-1738), of Leyden.

Besides Nos. 1146-52, and 1843, there are:

2649. Obverse. Bust to left. (By J. Elion.) Reverse. Societatis Scientiarum Hollandicæ-Magnum Præmium. Bronze. 48.75mm. Schulman Cat., November, 1896, No. 251.

2650. Obverse. Bust, to left, three-quarters facing. Below: Dr. Boerhaave Reverse blank. Wedgewood. 48x62. 75.106 mm. By Flaxman. Communicated to me by Mr. A. H. Lyell, of London.

Boerhaave's name is also mentioned upon the two medals of Dr. T. L. Regemann, of Poland.

France.

Dr. Jean Fernel (1497-1558), of Paris.

Besides Nos. 1160-62, and 2081, there is:

2651. Obverse as that of Nos. 1161 and 1162. Reverse as that of No. 1162, save that the first and last letters of the inscription

touch the roof of the building. Bronze. 38.60mm. Cat. des poinçons, p. 312, No. 17; Méd. Fr. du Museé mon., p. 306, No. 10; Hennin, *loc. cit.*, p. 440, pl. 64, No. 642; Rudolphi, p. 52, No. 213; Duisburg, p. 42, CXVI, No. 3; *Ibid.*, Cat., p. 121, No. 140; Snowden, Medallic Memorials (etc.) in U. S. Mint, p. 129, No. 48; Trésor de num., VI., p. 69, pl. LIII., No. 10. In the U. S. Mint and Government collections, and my own.

Germany.

Dr. Brettauer, of Trieste, thinks that the following should be classed with syphilis, although P. and R. included it with the Plague:

2652. Obverse. The scourging of Christ. At right, 1539 Inscription: Svpra o Dorsvm o Mevm o Fabricaverunt o Peccatores o Psl o 1280x Reverse. Job seated, his back covered with pustules, is cossetted under the chin by his wife, while the Devil pours more pustules upon him from a cornucopeia. Inscription: Si o Bona o Svscepimvs o Mala o Cvr o Non o Svstineamvs o Iob o 2 o+ Silver, gilt. 31.48mm. P. and R., Die Deutschen Pestamulete, p. 483, No. 62. I have impressions from Dr. Brettauer.

In this connection may be mentioned the medals relating to circumcision, viewed allegorically as a means of preventing spiritual infection as though it were with venereal disease.

2653. Obverse. Bust, to left. Below: Nic. Cerbara. Inscription: Gregorius. XVI. Pont. Max. An. III. Reverse. The operation. Legend: Lumen Ad Revelationem Gentium Exergue: Roma Spink & Son, Num. Circular, December, 1896, No. 35239.

2654. Obverse. The Adoration by the shepherds. Below: E. K. (Engelbert Kettler, 1637-56.) Inscription, in German script: Und Das Wort Ist Fleisch Worden. Joh. am I. Reverse. The operation. Inscription: Sein Nam Werd Gennenet Jesus. Luc. am 2. Silver. 25.40mm. Edges milled. Thieme, Num. Verkehr, October, 1896, No. 3111. In my collection.

2655. Obverse. The operation. I. H. Legend: Circumcidite. Præputium. Cordis. Deut. 10 Reverse. The baptism of J. C. Legend: Recipiscite Et Baptizamini. Act . 2. Gold, silver, gilt. 29.46mm. Salomon Cat., Dresden, 14 November, 1893, No. 2765.

2656. Obverse and reverse. Devices as preceding. Silver. 34mm. Donebauer, 1135-8; Helbing Cat., 1897, No. 3694.

2657. Medal of 5558=1817, with two benedictions in Hebrew. Silver. 25.40mm. Given by the sponsor. Schulman Cat., November, 1896, No. 373.

2658. Medal of Margareta von Brederode, Abbess of Thorn. Wolters, Notices Hist., etc., pl. V., No. 20.

2659. Hebrew Society Berit Abraham. Bronze. Schulman Cat., May, 1890, No. 803.

2660. Medal of Rabbi L. J. de Beer, of Utrecht. Obverse. A large antique chair, to left. Inscription throughout circumference in Hebrew. Reverse blank. Silver, bronze, plated. 24.39 mm. In the collection of the late D. C. Walter, of New York, who sent me rubbings.

X, XVI. *Leprosy.*

France.

Dr. Ambroise Paré (1509-1590), of Paris.

Besides No. 1183, there are:

Two medals by David d'Angers.

2661-62. 1. Quadrilateral. 2. Bronze. 101.160mm. Jouin, *loc. cit.*, p. 349, No. 895.

2663. Obverse. Bust. Inscription: Ambroise Paré Reverse. A cartouche, upon which: 1843-1893 Inscription: Société De Chirurgie De Paris Silver. 25.40mm. Upon the fiftieth anniversary of the Society of Surgery. Communicated to me by Prof. Paul Berger, of Paris.

Germany.

The following is interesting in this connection:

2664. Obverse. Naaman healed by the Prophet Elisha. Inscription: Naaman's Leib Wirt Rein Im Jordan Von Der Flvtt* Reverse. Christ upon the cross, and a kneeling child. Silver. 26.41mm. Helbing Cat., 8 November, 1897, No. 3282.

X, XVII. *Contagious Ophthalmia.*

Belgium.

Baron Dr. Louis Joseph Seutin (1793-), of Brussels.

There are two additional varieties of No. 1190.

2665. As that, but with the second o in Moscou partly altered into a. 40.62mm. In the Brettauer collection.

2666. As that, but with Moscau. 40.62mm. In the Government collection.

X, XIX. *Epizootics.*

The United States.

Pennsylvania.

2667. Obverse. Man beating fallen horse. Inscription: The Erie County Society For The Prevention of Cruelty to Animals. Reverse. Member of S.P.C.A. Copper. 32.50mm. In the Disbrow collection.

2668. Obverse. Horse's head to left, with loose check rein. Reverse. Pennsylvania coat of arms. Beneath: Awarded to Inscription: Woman's Branch | * Penna. Soc. For The Prevention of Cruelty to Animals* Bronze. 16.25mm. In my collection.

South Carolina.

Besides No. 1218 there is:

2669. Obverse as No. 1216, but South Carolina, and with omission of For The and Of. Reverse blank, save scrolled edge. White metal. 24.36mm. Communicated to me by Messrs. S. H. & H. Chapman.

England.

Prof. Charles Spooner (-1872), of London.

2670. Obverse. Within circular field, bust, facing and towards left. Inscription: Veterinary Medical Association |. Royal Veterinary College. Reverse. Laurel branches, tied by ribbon. Beneath. Wiltshire-London. Bronze. 29.45mm. Storer, *loc. cit.*, October, 1895, No. 920. In my collection. The Association above referred to is a students' society connected with the college, and Prof. Spooner, founder of the medal, was president of the former and principal of the latter. I have these details from the secretary of the college, Mr. Richard A. Powys, through Dr. F. P. Weber, of London.

The following is allegorical.

2671. Obverse. A sheep's head. Legend: Occvpet Extremv(m) Scabies Reverse. A man's head, etc. Williamson's Boyne, No. 111; Weber, School Tokens of the Seventeenth Century, p. 6.

HOLLAND.

2672. Obverse. Bust (of the Minister of Heemskerk, author of law for suppression of the cattle plague). Abr. F. Reverse. The Virgin writing upon a table. Elion. Inscription: Scaldes Cursum Correxit, Domuit. Pestilentia Pecoris Bronze. 43.69 mm. Schulman Cat., June, 1896, No. 186.

BELGIUM.

Brussels.

Besides No. 1848, there is:

2673. Obverse as that of No. 1848. Reverse also, save: Souvenir | Du | Congrès | International | Des | Societés Instituées | Pour | La Protection | Des Animaux | Tenu A | Bruxelles Bronze. 15.23mm. Souvenirs num. du 50me anniversaire de la Independance de la Belgique, p. 20, No. 42, pl. VI., fig. 28.

2674. Obverse. Head, to left. Beneath: Leop. Wiener Inscription: Leopold II Roi-Des Belges Reverse. Within circle surrounded by wreath of flowers and fruit: Societe | Royale | Protectrice | Des | Animaux Bronze. 28.44mm. In my collection.

Louvain.

Dr. Alphonse de Marbaix (1825-), Veterinary Surgeon.

2675. Obverse. Head, to left. Beneath: F. Vermeylen. Reverse. A | Al. De Marbaix | Ses Elèves Et Ses Amis | 3 Mai 1894 Bronze, lead. 32.50mm. De Witte, Méd. Hist. de Belgique, p. 26, No. 12, pl. VIII. In my collection.

2676. As preceding, but larger. Gilt, bronze. 126.200mm. Six struck. *Ibid.*, p. 27.

FRANCE.

Dr. Henri Bouley (1814-), of Paris, Veterinary Surgeon.

I am now enabled to give the description of this medal.

(2991.) Obverse. Bust, to right. Inscription: Henri . Bouley . President . De L'Academie . Des . Sciences . 1884 . 1885 Reverse. A seated female, to left, with sheep and poultry. Around her and beneath, elaborate devices. Beneath: Inspecteur General Des Ecoles | Veterinaires | Commandeur De La Legion D'Honneur | Professeur Au Museum | Ses Eleves Ses Confrères |

Ses Amis Below this: serpent upon staff of Æsculapius, with mirror Inscription: Arte Nova Pastor Pecor -vm Contagia Vincit | Gratvm Opvs- Agricolis Bronze, silvered. 66mm. By Louis Oscar Roty. Grolier Club Cat., April, 1893, p. 3, Nos. 18-19. In the New York Metropolitan Museum Collection.

Dr. Jean Paul Marat (1743-1793), of Paris, Veterinary Surgeon to the Count of Artois, afterwards Charles X.

2677. Obverse. Bust, head bound with handkerchief, to left, upon a base bearing between rosettes: Marat Reverse blank. Bronze, tin. 28.45mm. Hennin, *loc. cit.*, p. 342, pl. 49, No. 509; Rudolphi, p. 100, No. 423; Kluyskens, II., p. 185, No. 1; Duisburg, p. 55, CXLVI.; *Ibid.*, Cat., p. 16, No. 193.

2678. Obverse. Bust to left, upon base. To its right: Marat Reverse blank. Iron. Octagonal. 33.53mm. Kluyskens, II., p. 186, No. 4; Trésor de num., VI., p. 52, pl. XLIV., No. 4.

2679. Obverse. Bust, to left, upon base. Inscription: A Marat L'Ami Du Peuple | .1793. Reverse. Bust of Liberty. Legend: Liberté - République Française. Bronze. 16.25mm. Duisburg, p. 55, No. CXLVI., 3; *Ibid.*, Cat., p. 16, No. 195.

2680. Obverse as preceding. Reverse blank. Bronze. 15.23 mm. Edges of obverse milled. In my collection.

2681. Obverse. Bust, towards left, head with handkerchief. Reverse. A | Marat | L'Ami | Du Peuple Tin. Oblong, octagonal. 16x20. 25.33mm. Edges starred. Hennin, p. 345, pl. 49, No. 511; Rudolphi, p. 101, No. 425; Kluyskens, II., p. 185, No. 3; *Ibid.*, Cat., p. 87, No. 144a; Duisburg, p. 56, No. 34.

2682. As preceding, but 27.42mm. Trésor de num., VI., p. 52, pl. XLIII., No. 3.

2683. Obverse. Laureated bust, to left. Inscription: Marat Des Nations Défenseur Intrepide Reverse blank. Iron. 26.40 mm. Kluyskens, II., p. 186, No. 5.

2684. Obverse as preceding. Reverse. Bust, to left. Inscription: Joseph Chalier Mourut Pour La Patrie A Lyon 1793 Lead, iron. 27.40mm. Edges chased. Millin, pl. 22, No. 81; Hennin, p. 397, pl. 58, No. 586; Kluyskens Cat., p. 87, No. 144b; Duisburg, p. 56, CXLVI., 5; *Ibid.*, Cat., p. 17, No. 196.

2685. Obverse. Bust, to left. Upon shoulder, incused: J.P.M. (arat). Near edge: Appartenant A Montigny. Reverse blank. Iron 36.58mm. Kluyskens, Cat., p. 87, No. 144; Duisburg, p. 56, CXLVI. 8; *Ibid.*, Cat., p. 17, No. 197.

2686. Obverse. Bust, to left. Inscription: Marat, Apparte-

nant A D.M. Reverse blank. Bronze. Stroehlin Cat. 2, Geneva, 1892, No. 2130.

2687. Obverse. Bust, to left, in relief. Behind, a heart transfixed by a knife, upon which: C. Corday. To left, incused: Marat Below, incused: David 1830. Reverse blank. Bronze. 74.117mm. Duisburg, p. 56, CXLVI., 10; *Ibid.*, Cat., p. 17, No. 199; Jouin, *loc. cit.*, p. 351, No. 910.

2688. Obverse. Bust, to left, with Phrygian cap and cockade. Beneath: Marat | L'Ami Du Peuple Behind: Ne Pouvant | Le Corrompre | Ils L'Ont Assassiné (a plummet crossed by a knife). Reverse blank. Bronze. 112.208mm. In my collection.

2689. Obverse. Bust and lower inscription as in preceding. Reverse blank, save at left, incused: F. G. Schenk | Maker | New-York. Bronze. 72.112mm. In my collection.

2690. Obverse. Bust, to left, head bound with handkerchief. Inscription: Le Divin Marat. Reverse blank. 28.42mm. Trésor de num., VI., pl. XLIII., No. 2.

2691. Obverse. Bust, to right, head bound by handkerchief. Inscription: Marat Martir De La Liberté. Reverse. Liberty, with fasces in right hand, and in left a spear surmounted by Phrygian cap. Inscription: La Liberté - Ou La Mort Lead, tin. 23.35mm. Hennin, p. 345, pl. 49, No. 510; Rudolphi, p. 100, No. 424; Kluyskens, II., p. 185, No. 2; Duisburg, p. 55, CXLVI., 2; *Ibid.*, Cat., p. 16, No. 194; Trésor de num., VI., p. 52, pl. XLIII., No. 1.

2692. Obverse. Bust upon a pedestal. Name absent. Reverse blank. Tin. 33.52mm. Duisburg, p. 56, CXLVI., 9; *Ibid.*, Cat., p. 17, No. 198.

2693. Obverse. Two busts facing. Below that at left: J P | Marat | 13 Ju Beneath that at right: Le | Pelletie (r) | 20 Jan. | 1793 Reverse. Within oak branches resting on base, fasces erect, topped by liberty cap: Jeton Républicain Exergue: S(ection) De L'Homme Armé Silver. 16.25mm. Hennin, p. 369, pl. 58, No. 584; Duisburg, p. 56, CXLVI, 6.

2694. Obverse. Two busts, facing, with crowns above. Le Pelletier. Marat. Reverse the same. Bronze. 23.35mm. Kluyskens, Cat., p. 87, No. 144c.

2695. Marat & Corday. Small. Cubasch sale, 22 Jan., 1894, No. 322.

2696. Obverse. Within a mass of garlands, and in ovals, three busts (2 | 1). Above, at left and facing to right: M. Pele-

tier ler Mire (Martire) De La Libte. Above, at right, facing: J. Chalier 3me Mre De La Liberté Below, facing and to right: J. P. Marat 2me Mre De La Liberté Reverse blank. 36.57mm. Hennin, p. 396, pl. 58, No. 583; Duisburg, p. 56, CXLVI, 7.

2697. Obverse. Three busts, with a star above. Marat. Lepelletier. Chalier. Reverse blank. Silver. Oblong octagonal. 8x13. 12.20mm. Kluyskens, Cat., p. 87, No. 144d.

2698. Obverse. Busts of Marat, Lepelletier, Chalier, Bara and Viala. Inscription: (Morts Victimes De La Liberté Em 1793) Reverse blank. Bronze. Oval. 22x27. 33.42mm. Hennin, p. 393, pl. 58, No. 582.

2699. Obverse. Marat carried upon a seat by four persons, the populace accompanying. Inscription: Marat Porté En Triomphe. Reverse blank. Lead. Oval. 37.54. 59.87mm. Corsi Cat., Florence, 1891, No. 3290.

Baron Dr. Antoine de Portal (1742-1832), of Paris.

Besides Nos. 1844-6, and 2048-9, there is:

2700. As No. 1845, save dates on obverse are close to shoulder, while in that they are away from it. Silver. 18.28mm. In the Disbrow collection and my own.

There are also the following:

2701. Obverse. (Napoleon III.) Reverse. Ministere De La Guerre. Question De Médecine Véterinaire, Traite Em ——. Bronze. 24.37mm. Baer Cat., Jan., 1898, No. 117.

Lyons. Societe Protectrice des animaux.

2702. Obverse. Bust of the president, Delmas de Grammont. 1854. Bronze. 24.38mm. Stroehlin Cat., 28 Oct., 1897, No. 596.

Paris.

2703. Laying first stone of the abattoirs. 1839. By Barré. Bronze. 32.51mm. *Ibid.*, No. 1590.

2704. Obverse. (Napoleon III.) Reverse. Société Protectrice Des Animaux. Bronze. 30.41mm. Baer Cat., Jan., 1898, No. 118.

GERMANY.

Cologne.

2705. Obverse. The city, seated, to left, with mural crown. In right hand armorial shield, in left a wreath. Behind, the cathedral and other buildings. Inscription: Kölner Thierschutz - - Verein Exergue, to right: Lauer Reverse. Within wreath

of laurel leaves, bound at four points: Für | Hervorragende | Leistungen | (a scroll) Bronze. 32.50mm. In my collection.

Munich.

2706. Obverse. Bust, facing. Inscription (in German, or Latin): Ignaz Perner of Munich, protector of animals. Reverse. Diana, surrounded by beasts, birds and fishes. Inscription: De Animalibus Bene Merito Bronze. 36.55mm. Schulman Cat., November, 1896, No. 403.

Stettin.

2707. Dr. Carl Ignaz Lorinzer (1796-1853), Veterinary Surgeon. By A. Scharff, of Vienna.

Denmark.

Dr. P. C. Abildgaard (— —), of Copenhagen. Veterinary Surgeon.

2708. Obverse. Head of Dr. A. Beneath: Conradsen Above: Artis Veterinariæ Below, in Greek: Aristo-teles Inscription: Societas Regia Hafniensis Cultorum Atque Fautorum Reverse. En Aabenkvands af to Egegrene, foneden Sammenholdte ved en Stoejfe. Beneath: IC Silver. 34.52mm. Bergsœe, Danske Medailler og Jetons, p. 28, No. 147.

Copenhagen.

Royal Veterinary School.

2709. Obverse. A horse drinking from a fountain. Before him, a post encircled by a serpent. No inscription. Reverse blank. Tin. 12.18mm. Bergsœe, Danske Foreningstegn, p. 117, No. 775; *Ibid.*, Danske medailler, p. 16, pl. IV., No. 115.

Royal Veterinary Society. See Abildgaard, above.

(*To be continued.*)

A Comma-cal Error.—The following testimonial is said (Médecine moderne; Gazette hebdomadaire de médecine et de chirurgie, May 12th) to have appeared in an American paper: "I am to-day perfectly cured, after having been at death's door from having simply taken five bottles of your medicine." The omission of the comma after "door" means a whole lot.

EDITOR'S TABLE.

SANITARIAN, SEPTEMBER, 1898.

☞All correspondence and exchanges, and all publications for review, should be addressed to the Editor, Dr. A. N. Bell, Brooklyn, N. Y.

ERRATA: *That first dose on being attacked with yellow fever.* The jumble of words in the first six lines of the paragraph beginning in the middle of page 183, August number, was made by the printer, in an apparent effort to continue and combine his first erroneous setting with corrected proof, omitting and substituting such words as would save him the trouble of contracting or expanding his lines. The corrected proof was:

"It was on board of an infected ship, at sea. I had had a restless night, ending with a chill from six to seven o'clock in the morning, and after an hour's writhing with such a neck ache and legs ache as those only who have had yellow fever can appreciate. I rose, dressed myself and went to the dispensary and took two drams each of calcined magnesia and sublimated sulphur."

The Binder's head was fuddled, too, as evident to everybody who has looked at the advertising pages.

THE CAMP EPIDEMICS.

E Pluribus Unum.

In default of order, ordure is a common condition of camp life. Every soldier knows this though he but rarely practices his knowledge without orders from those whose duty it is to give them and see that they are observed.

MIAMI appears to have been urged upon and accepted by the Secretary of War as a site for a military camp on its reputation as a health resort.

It "was selected," says the Jacksonville (Fla.) Times of August 1st, "by Surgeon Greenleaf and Major Hopkins, who were sent down from the office of the Secretary of War for that purpose. It was agreed and understood that the camp should be located on the bay point and should be sewered," which, had it been properly done, would have added to the reputation of the place as a health resort, as doubtless intended.

"Joseph A. McDonald, superintendent for Mr. Flagler, proceeded with the work of clearing four blocks of bay frontage sufficiently deep to accommodate the entire six regiments now here, and everything was placed in good shape for the troops. The camp ground was being sewered when the first regiment arrived. The order was given by military authority that the Second Brigade should be given ground west of the railroad, on land entirely uncleared, a half mile or more away from the bay, much lower than the bay point and outside the sewerage system of the city.

"The force of men which was to have been employed in putting in sewerage for the Second Brigade were put at work to hastily prepare sufficient ground for the tents of the troops, thus compelling this brigade to clear their own camp ground to a large extent, and to use pits in the ground for several days for offal.

"The camp ground for the First Brigade was sewered as agreed by Mr. McDonald, but the ground occupied by the Second Brigade, because of the reasons mentioned, could not be sewered.

"At this time, of the four blocks front of high bay frontage cleared purposely for the camp ground, only a little over one block was occupied. Two blocks back this piece of cleared ground was occupied as a mule lot and wagon yard. Mules were placed on high ground where the Second Brigade should be, and troops were placed on low ground where mules should be. So far, who was to blame?

"When the troops arrived, it was suggested to one of the officers in command (a general) that a guard be placed at the reservoir which supplies the city water works. The general did not consider this necessary, and the suggestion was not acted upon. Later, when a declaration was sent to look at the source of supply of water for the waterworks, a large number of troops were found in bathing in the reservoir from which the water is drawn. At one time it is known that soldiers used dynamite near the reservoir with which to kill fish. Many of the dead fish floated down to the reservoir, and, attracted by the suction, remained there to infect the water. Who is to blame for this? Surely not the authorities.

"These conditions have been remedied, however, and do not now exist. But some of the alleged damage may have been done. The stable door was locked after the horse was stolen.

"Dr. Greenleaf investigated the well water here thoroughly, and pronounced it wholesome and pure. What did the authorities in charge of the troops do? Instead of carting away the offal of the

camp daily, it was deposited in sinks near the company wells. The troops were allowed to wash themselves, their clothing and dishes upon the ground at wells from which they drank water. Who is at fault here? Surely, not the civil authorities.

Dr. Jackson's Statement.

"One-third of the population of Miami uses waterworks water, and two-thirds of them use well water. Thursday morning Dr. J. M. Jackson, Jr., the first physician to arrive in Miami after the town was started, stated to the writer that he had only had one case of typhoid fever in two and one-half years, and that he had never had a case of malarial fever of any kind which had originated here. So much for Miami's past in the use of the very water that is now so furiously condemned.

"The troops are purposely given to understand that the death rate here in the camp has been something enormous. One surgeon, Dr. McLaughlin, told the writer, in the presence of a third party, last Monday night, that there had been forty-three deaths. He particularized by stating that twenty-one had been buried in one spot in the cemetery. Edwin Nelson, sexton of the cemetery, states that he locates every grave, and that there are but twenty-one graves, all told, citizens and all, who have ever been buried in the cemetery. For a purpose the report is given out by officers of a great death rate.

"The writer sought Dr. Vilas, who has charge of the division hospital, second to Dr. Appel, and the doctor furnished him with the exact number of deaths which had occurred in the camp since the arrival of the troops. This list does not include one soldier who was shot by a citizen, and one who shot himself, as they did not come under hospital jurisdiction. We present Dr. Vilas' report in his own language, from his own pen, as follows:

Dr. Vilas' Report.

"Villanarbo, K, First Louisiana, July 9, acute dysentery.

"Tatum, G, First Texas, chronic alcoholic gastritis, July 12, '98.

"Kirby, D, Second Texas, suppurative appendicitis, July 13.

"Miller, G, First Lieutenant, July 18, measles, complicated by dysentery.

"Magnuies, H, Second Louisiana, July 18, typhoid fever.

"Lieutenant Nelson, K, Second Louisiana, July 19, typhoid fever.

"Wood, E, Second Texas, July 24, typhoid fever.

"Powell, E, Second Louisiana, July 23, typhoid fever.

"Lieutenant Sneed, July 24, typhoid fever.

"Alston, G, Second Alabama, July 25, typhoid fever.

"Jeb V. Rogers, Company A, Second Texas, July 18, measles.

"Without stating to Edward Nelson, the undertaker who had buried all the soldiers who have died here, that a mortality list had been received from Dr. Vilas, Mr. Nelson was asked for a list of those persons of whose deaths he had a record as undertaker. Mr. Nelson furnished the following list, which it will be seen agrees with that of Dr. Vilas in so far as the number and names are concerned, with the exception of Private Scott, killed, and Private Brady, who committed suicide:

"June 26.—Joseph Scott, private of New Orleans, shot by Sigsby of Company M, First Louisiana.

"July 9.—O. Villanarho, private, Company K, First Louisiana; dysentery, was taken with it before he left New Orleans.

"July 13.—Kirby, private, Company D, Second Texas.

"July 13.—Brady, Alabama; suicide.

"July 13.—Tatum, Company G, First Texas; congestive chill. Shipped to San Antonio, Tex.

"July 8.—A. L. Magnuier, Company H, Second Louisiana Regiment; typhoid fever.

"July 18.—Scott Merrick Miller, Company G, First Louisiana; relapse of measles. Shipped to Lake Charles, La.

"July 18.—First Lieutenant John D. Nelson, Company K, Second Louisiana Regiment; typhoid fever.

"July 24.—Lieutenant Sneed, Company A, Second Louisiana Regiment; typhoid fever. Shipped to Mississippi, via New Orleans.

"July 24.—G. F. Powell, Company E, Second Texas Regiment.

"July 25.—Robert N. Alston, Company G, Second Alabama Regiment; typhoid fever. Shipped.

"July 23.—Private Wood, Company E, Second Louisiana Regiment; typhoid fever.

"July 28.—Zeb V. Rogers, Company A, Second Texas Regiment.

"O. Villanarbo had been in the hospital since the troops left New Orleans; Kirby died of an operation for appendicitis, Tatum died of alcoholism, as Dr. Vilas reports, and of congestive chills, as Lieutenant Nelson reports; Miller died of relapse from measles, of which he was sick when he arrived; while the rest died of typhoid fever. Lieutenant Sneed was sick when he arrived. This

leaves just five cases which may or may not have originated in Miami.

"The question was put to Dr. Vilas in this way: 'Doctor, is it probable that a man can contract typhoid fever from conditions that may exist in a town whence he came and the disease run its course and death result in eighteen days?"

"'It is possible, but not probable,' replied the doctor in substance. The conditions were healthful here when the troops arrived, as is undeniably shown by our own healthful conditions, and as was expressed by Dr. Greenleaf. This being the case, it must have required several days to deposit the germs of typhoid in the water of the driven wells, which were twenty feet deep, especially considering the fact that there were no rains to carry the filth to the bottom of the wells for two weeks after the troops came. It is reasonable that no typhoid germs were taken from the sinks to the bottom of the well to contaminate the water until after rain had fallen, which was not the case until July 12. It must have required some few days after that to carry the germs to the water, and thus to the user, and still a few more days at least to develop the disease. This would make it at least July 20 before a case could have appeared, at which time there had been two deaths from typhoid fever recorded. A man does not die from typhoid fever the moment or day he is taken sick. Several days are required to develop a case of typhoid to a certainty, to say nothing about death resulting. Upon a reasonable basis of reasoning there has not yet time sufficient elapsed to develop a case of typhoid and death result from disease inoculated in Miami."

THE Philadelphia Ledger relates this incident:

"Lieutenant Montelius, one of the surgeons attached to the Eighth Pennsylvania Regiment, was visiting Major Hines, a retired army officer, who lives in the neighborhood of Camp Alger, near Falls Church, Va., and the question of where all the typhoid was originating came up. After saying that for thirty-three years there had been but one case of typhoid fever in this locality before the soldiers came, Major Hines remarked that he thought the milk supplied the men in camp was responsible for a great deal of the trouble. 'Why do you believe that?' asked Dr. Montelius.

"'Well, simply because I saw a milk dealer whom I know stop at a stream the other morning, and a particularly dirty stream at that, and dilute the milk in several cans in his wagon with the water. Not only this, but so that the minnows which he scraped

up out of the brook might not get into the milk he strained the water through an old horse blanket. Now, this is an absolute fact. I'm not a milk dealer myself, so I have no interest in the matter save the apprehension that this may be the source of much of the typhoid, because the stream drains a region with some typhoid cases in it.' "

The conditions on the whole are such that the proportion of deaths from preventable diseases compared with those from battle is likely to exceed that of the civil war, when it was often impossible to choose camp sites with reference to healthful localities, as the fighting was conducted with such activity as to obstruct choice. According to the statistics of the civil war, the total number of deaths was 304,369. Killed in battle 44,238; died from wounds 49,205—93,443. Died from disease 186,216; and of these (from disease) 60,172 deaths were attributable to foul water—30,836 from diarrhœal diseases and 29,336 from typhoid fever. From suicides, homicides, etc., 526; from unknown causes, 24,184.

SANTIAGO DE CUBA is a typical yellow fever nest. Situated in a climate eminently propitious to that disease, constructed and maintained as all old Spanish towns were and are, without regard to sanitary conditions. With narrow, crooked streets, low one-storied dwellings and stores, with closely fenced or walled-in back yards, retentive of surface filth and obstructive of air circulation. Old and decayed foundations, literally saturated with filth of one kind or another, have been built upon for modern dwellings, or absolete tumble-down structures, continuously occupied for more than a century, are the striking characteristics of the place and people. No sewerage worthy of the name, and no soil drainage whatever; the rainfall and surface drainage into the harbor are the only dependence for cleanliness; while the subsurface is in a state of constant saturation with putrescible matter. Malarial and typhoid fevers are perennial, and yellow fever for the summer months annually. That our troops should have been so long detained there and roundabout in the trenches without apparent recognition of the greater danger to life from *these conditions* than there would have been had less time been taken up in correspondence about the conditions of the surrender on demand, is the wonder of every intelligent observer, alike irreconcilable with a due regard for the health of the army as the disgraceful neglect of the sanitary condition of the camps.

THE NEW CAMPAIGN AGAINST YELLOW FEVER, inaugurated by Col. Wood in Santiago, since the Spaniards surrendered, opens up a work for the Cubans no less important to their future prosperity than getting rid of Spanish rule. They should be quick to avail themselves of the advantage of American occupation and co-operation in a war of extermination and prevention of yellow fever. The work begun at Santiago should not by any means end with mere surface cleansing. Destruction of foul nests, no matter how or by whom they may be occupied, soil drainage and sewerage, should follow, and all obstacles to this work should be destroyed. No reliance should be placed upon the use of disinfectants on, in or roundabout old buildings or premises for many years infected: nothing short of destruction by fire should be depended upon in such cases. And this same course should be pursued in other infected localities, above all in Havana, the most productive yellow fever nest in the world. It shoul be preceded, or rather led, bv a thoroughly competent sanitary survey, and there should not be any restriction placed upon the needs of sanitary work in this regard. Whatever the destruction of property involved in the work, would be abundantly remunerated by the increased value of the remainder upon its accomplishment.

FIGHTING TUBERCULOSIS.—The Pennsylvania Society for the Prevention of Tuberculosis deserves much credit for its effort to teach the people that consumption is a preventable disease, and that if proper State and municipal regulations were made and enforced the suffering and deaths from this cause would perceptibly decrease. In the years from 1884 to 1893 the number of deaths in Philadelphia from thirteen prominent diseases was 116,991. Of this number pneumonia is credited with 17,662, heart disease 10,246, cholera infantum 9,623, marasmus 9,196, convulsions 8,754, inflammation of the brain 6,743, diphtheria 6,605, inflammation of the stomach 6,384, typhoid fever 6,276, apoplexy 4,954, scarlet fever 3,137 and small-pox 132. The balance, or 27,294 persons, died of consumption, a preventable disease.

The Society urges attention to the lamentable lack of hospital room for consumptive patients who are too poor to pay for treatment and a bed. The very small number of beds in charitable institutions makes it impossible to provide for more than an infinitesimal percentage of those who should receive such aid. A State sanitarium in the higher regions of Pennsylvania and a municipal hospital for tuberculosis patients near this city are imperatively needed.

MICHIGAN STATE BOARD OF HEALTH, AND CONFERENCE OF THE STATE AND PROVINCIAL BOARDS OF HEALTH OF NORTH AMERICA.

The Quarter Centennial Celebration of the Michigan State Board of Health in conjunction with the conference of the State and Provincial Boards of Health of North America took place, as before announced, at Detroit, August 9-11, 1898.

The celebration was opened with prayer by the Rev. John McCarroll. Hon. Frank Wells, President of State Board of Health, followed. He said in part:

"The last quarter of this greatest of all centuries, contemporaneous as it is with the period during which the Michigan State Board of Health has had an existence, is notable for the development of two sciences, biology and sanitation. Had the entire century nothing more to offer than these two co-ordinate branches of knowledge, it might still retain its rank in the world's march of progress. The application of this knowledge to the saving of human life and the prevention of human suffering has kept misery and despair from entering countless homes. It has dictated methods of treating the wounded upon the battlefield so successfully that much of the horror of war has been dispelled."

After reviewing the achievements of the army on the battlefield, he said that while mankind would always honor the true soldier, it would never forget the good sanitarian. He recounted the achievements of vaccination, the establishment of the germ theory of disease; set forth the fact that Michigan was a pioneer in the work through its board of health, and then devoted the rest of his address to depicting the numerous advantages of the State, as a pleasure and health resort.

Mayor Maybury welcomed the delegates. He remarked that they had come to a city where the doctors do not live by curing diseases, but by making the healthy healthier. Residents of Detroit, affirmed the mayor, have an average from 10 to 15 pounds more avoirdupois than the inhabitants of other cities.

Dr. Gibbes, Detroit's health officer, spoke for Gov. Pingree. In lauding the beauty of the city, Dr. Gibbes feelingly averred that for him there was only one more removal to make, and that was from Detroit to heaven.

The first paper on the programme, entitled "A Quarter-Century of Sanitary Work," was prepared by A. N. Bell, M. D., Brooklyn, N. Y., but in his absence was read by Dr. Henry B. Baker. It is printed in full on other pages of this number.

Chicago's health commissioner, A. R. Reynolds, followed with a paper on "Public Health Work in Michigan." Dr. Reynolds began his medical career at Orion, Mich., and was identified with the sanitary legislation for several years.

"Between 1890 and 1896," said he, in the course of his paper, "nearly 150,000 cases of sickness were prevented and more than 7,000 lives were saved from premature death through the advice, instructions and supervision of this board."

He said: "Michigan's mortality rate is the lowest in the land. The advancement of property values because of this fact, and of the increased security of investments were touched upon, and the establishment and operations of the Board of Health given credit for its share in bringing these things to pass.

"In this work of sanitation there is nothing of the spectacular. There is none of the inspiration and the glory that reckon with a nation saved or a foe repulsed by feats of arms. Nevertheless, those who study understand that the proper appreciation of sanitary science defeats man's most relentless foes, and that neglect or defiance of her laws has brought destruction to nations in all time.

"And right here let me say that, if unhappy Spain had no other sin than that of having maintained at our doors a preventable breeding-place for yellow fever, she richly deserves the wrath that has been visited upon her."

A paper on "Sanitary Work Twenty-five Years Ago," delivered by Prof. R. C. Kedzie, ex-president of the State Board of Health, followed and concluded the morning's programme. Drainage of swamps, school-house architecture, and many other topics with which the Board had had to do, were reviewed by the speaker.

The afternoon session was opened by Professor C. A. Linsley, dean of the medical faculty of Yale College and president of the American Public Health Association, who read an interesting paper on "The Educational Work of the State Board of Health of Michigan."

Dr. Benjamin Lee, of Philadelphia, president of the National Conference, read a paper on "Sanitary Conventions."

Dr. C. O. Probst, secretary of the Ohio State Board of Health, read a paper on "Annual Conferences of Local Health Officers."

In a paper entitled "State Work for the Restriction and Prevention of Disease," Dr. John S. Fulton, secretary of the Maryland Board of Health, advocated state control over municipal authorities in the event of even a semblance of an epidemic of conta-

gious disease. Dr. Ernest Wende, Health Commissioner of Buffalo, read a paper on "Municipal Restriction of Diseases." He claimed that the nursing bottle was the greatest breeder of infantile disease that he knew of. He also advocated practical isolation of all sufferers from tuberculosis.

At the evening session there was an audience of about 175 persons, including a score of ladies, who listened to a number of five-minute addresses by sanitarians from every part of the country.

Dr. Felix Formento, of New Orleans, represented the South, and spoke on "Cremation of the Bodies of Those Who Die of Communicable Diseases." Hon. Le Roy Parker, vice-dean of the Buffalo Law School and ex-president of the Michigan Health Board, indulged in a reminiscent talk, and on the benefits that would accrue from teaching hygiene and sanitation in the public schools generally. Dr. Bryce, secretary of the Ontario Provincial Board of Health, brought to the convention the greetings of Canada. Dr. D. E. Salmon, V. S., chief of the United States Bureau of Animal Industry, discussed the work of stamping out and preventing disease in cattle. Dr. C. S. Wilbur, chief of Michigan's Division of Vital Statistics, and Dr. J. N. Hurty, secretary of Indiana's State Board of Health, also spoke.

After the programme the delegates to the convention were received by the local committee, and passed on into the dining-room, where luncheon was served, followed by speeches.

The conference of the State and Provincial Boards of Health opened at 10 o'clock, August 10, with an arraignment of Detroit's water supply, by President Benj. Lee, of the Pennsylvania State Board. The charge was incredulously listened to by all Detroiters present. Health Officer Gibbes, when approached immediately after the speech, declared that Detroit knew better; that no danger lurked in her water supply, and that it was proved monthly, almost daily, by complete analysis.

President Lee's charge was made in his response to the address of welcome by Health Officer Gibbes. He said:

"The typhoid fever death rate in Detroit is higher than that in Philadelphia. You have a low general death rate, but don't you trust to it. You have no business to have a high typhoid fever death rate. It was only at the last annual conference that a paper was read by Dr. Williams, calling attention to the pollution of the waters of Lake St. Clair at Port Huron. Some gentlemen at the

convention pooh-poohed it all; said it was impossible to pollute Detroit's water supply; that the waters of Lake St. Clair purified themselves while rushing down toward Detroit.

President Lee's arraignment of Detroit's water was based upon the recent epidemic of typhoid fever at Port Huron, and the high typhoid death rate of Detroit, as compared with his native city. Health Officer Gibbes sees no cause for alarm and believes the allegation not well grounded.

Dr. J. N. Hurty, secretary of the conference (and of Indiana State Board), reported three new members at Old Mexico and Manitoba and New Brunswick. Dr. Paulus Irving, of Virginia, has written him, advising a permanent convention city for the conference, and recommending Washington, D. C. A permanent convention city, he urges, would result in an increased annual attendance.

Dr. Hurty stated that the association, under its new name, adopted at the last conference, had no constitution. He suggested the articles for one, as follows:

To make the name "The Conference of State and Provincial Boards of Health"; to make all executive officers and other delegated representatives of the state board of health of United States. Mexico and Canada members of the conference; to provide $15 annual dues for each board; to provide for a vote on any subject upon demand of two delegates, each State to have one vote; to make the officers of the conference a president, vice-president, secretary and treasurer, their duties to be the usual duties of those officers.

The proposition was adopted, with the exception of annual dues, which were left open for pro rata assessment in accordance with the annual expenses. Twenty-three States and provinces voted on the question.

On recommendation of Dr. C. L. Wilbur, of the Michigan Vital Statistics Bureau, resolutions were adopted advising all States, as soon as convenient, to adopt the Bertillion system of the classification of the causes of deaths, and asking the governments of Canada, Mexico and the United States to conduct their next census reports under that system.

Under the reports from States much interesting and a wide field of special work in practical hygiene and sanitation was covered, each State depicting its particular struggles and special line of work peculiar to its climate, laws and character of people.

The second day's session, August 11, was mostly taken up with a discussion of the various questions relative to the etiology, pathology, restriction and prevention of tuberculosis.

After the morning session of August 10, at which the principal lines of work of State Boards of Health were presented, the visitors were taken on a trolley-car ride to Parke, Davis & Company's large plant for the manufacture of drugs. There an elaborate luncheon was served by that institution, and the delegation were taken through the entire establishment. A steamboat ride on the river occupied the remainder of the afternoon, and dinner on the river-side pavilion of the Wayne Hotel completed the festivities of the day. The evening of August 10 was devoted to a paper and an address on the purification of surface water, illustrated with stereopticon views, followed by general discussion of the subject by the executive officers of the State Boards of Health.

Altogether the congress of the two meetings seems to have constituted one of the most successful and important conventions relative to sanitary work ever held in this country.

MORTALITY AND MORBILITY REPORTS AND REVIEWS.

Correspondents under this head are particularly requested to be as prompt as possible.

ALABAMA.—W. H. Sanders, M. D., State Health Officer, Montgomery.

CALIFORNIA.—C. A. Ruggles, M. D., President, Stockton; W. P. Matthews, M. D., Secretary, Sacramento.

San Francisco, 360,000. J. Gallwey, M. D., Health Officer. Report for June: Deaths, 452—96 under five years. From zymotic diseases, 25; diphtheria, 5; typhoid fever, 3; cerebro-spinal fever, 5; phthisis, 66; bronchitis, 10; pneumonia, 30. Annual death rate, 15.00.

Los Angeles, 103,000. Q. M. Powers, M. D., Health Officer. Report for June: Deaths, 126. From phthisis, 24; acute pulmonary diseases, 9. Annual death rate, 14.6.

COLORADO. A. Stedman, M. D., President, Denver; Henry Sewell, M. D., Secretary, Denver.

Denver, 167,000. William P. Munn, M. D., Health Commissioner. Report for June: Total number of deaths, 150. Annual death rate, 10.78. The principal causes of death were: Phthisis (contracted elsewhere, 31), 36; tuberculosis of all kinds, 39; diphtheria, 3; pneumonia, 14; heart disease, 4; and nephritis, 4. There were 23 cases of diphtheria, as compared with 27 in May; 26 cases of scarlet fever, as compared with 21 in May; and 3 cases of measles, as compared with 4 in May.

CONNECTICUT.—Professor William H. Brewer, Ph. D., New Haven, President; Prof. C. S. Lindsley, M. D., Secretary, New Haven.

By Mortality Reports received, there were 984 deaths reported during the month of June. This was 154 less than reported in May, and 6 more than in June of last year, and 18 less than the average number of deaths in June for the five years preceding the present. The death rate was 13.2 for the large towns; for the small towns 13.2, and for the whole State 13.2. The deaths from zymotic diseases were 143, being 14.5 per cent. of the total mortality.

DISTRICT OF COLUMBIA, 276,963—88,176 colored. Wm. C. Woodward, M. D., Health Officer, reports the mortality for five weeks ending July 30, 704. Death rates, 20.1 for the white, 38.9 for the colored, and 29.5 for the whole population. Deaths from zymotic diseases, 254; diphtheria, 13; consumption, 72.

FLORIDA.—Hon. W. B. Henderson, President, Tampa; Joseph Y. Porter, M. D., State Officer, Jacksonville.

The health of the State during July was remarkably good for this season of the year, and compares most favorably with the record for the month for previous years. Nothing of a dangerously communicable nature demanded the attention of the State health authorities beyond an isolated case or two of small-pox. Typhoid fever was reported in eight counties, but in no instance was there anything like a general prevalence. August is ushered in most promisingly, so far as the general health of the State is concerned.

Yellow Fever at Key West.—Washington, Aug. 16.—Surgeon General Sternberg received the following dispatch from Key West to-day:

Three cases of yellow fever and three suspected cases officially reported at marine barracks here. Have fifty men at this hos-

pital, mostly from the Fifth Corps, ready for duty, and thirty-one convalescents able to travel. Borden, Surgeon.

Aug. 18.—There are now ten cases in the marine barracks, all the victims being marines. Forty persons in all are in the building, which is an old cigar factory, and a most rigid quarantine is being maintained.

ILLINOIS.—L. Adelsberger, M. D., President, Waterloo; J. A. Egan, M. D., Secretary, Springfield.

Chicago, 1,619,226. A. R. Reynolds, M. D., Commissioner, reports: Total deaths from all causes during the month of June, 1898, 1,581; annual death rate, twelve months ended June 30, 1898, per 1,000 of mean population (white, 14.05; colored, 22.68), 14.16.

Deaths from diphtheria, 30; typhoid fever, 35; consumption, 218; other tubercular diseases, 34; pneumonia, 142; bronchitis, 47. Contagious diseases reported during the month: Diphtheria, 128; scarlet fever, 73.

INDIANA.—H. Jamerson, M. D., President, Indianapolis; J. N. Hurty, M. D., Ph. D., Secretary, Indianapolis.

Total number of deaths reported for the quarter ending June 30 is 3,358. Over one-third were caused by consumption and pneumonia. Diphtheria and scarlet fever hardly existed, only 8 deaths from both these diseases being reported. The death rate for typhoid fell markedly.

Reports from all parts of the State for July, as compared with June, show an increased prevalence of typhoid, dysentery, cholera infantum, inflammation of the bowels, diarrhœa, intermittent fever, puerperal fever.

Decreased prevalence of rheumatism, tonsilitis, bronchitis, whooping-cough, erysipelas, pneumonia, influenza, measles, scarlet fever, diphtheria, croup. It is observed that the diseases which have increased are almost all water-borne. Most of the decrease is of diseases known as house diseases, chiefly due to need of ventilation. Hog cholera is reported prevalent in Fulton county, and present in Clay, Floyd, Ripley, Wabash, Wells and Whitley. Athrax reported from Floyd county—twenty cases in milk cows.

IOWA.—J. I. Gibson, V. S., President, Denison; J. F. Kennedy, M. D., Secretary, Des Moines.

Davenport, 36,000. A. W. Cantwell, M. D., Health Officer, reports for June: 28 deaths, of which 4 were from consumption and 1 from pneumonia.

MARYLAND.—John Morris, M. D., President, Baltimore; John S. Fulton, M. D., Secretary, Baltimore.

Baltimore, 506,398—73,344 colored.—G. Hampson Jones, M.D., Health Commissioner, reports for June: The total deaths were 967, an increase of 142 compared with the corresponding month of June, 1897. Of these 725 were whites and 242 colored; a death rate of 20.18 per 1,000 for the former and 38.72 for the latter. For the whole population it was 22.93. Sixty-two died from infectious diseases, 72 from consumption, 61 from pneumonia, 17 from bronchitis, 3 from influenza, 47 from Bright's disease, 23 from apoplexy, and 9 from typhoid fever; 445 or 46.01 per cent. of the total deaths were in children under five years of age.

During the month 360 cases of infectious diseases were reported, a decrease of 94 compared with the preceding month.

MASSACHUSETTS.—H. P. Walcot, M.D., Chairman, Cambridge; S. W. Abbott, M. D., Secretary, Boston.

Boston, 528,912. Samuel H. Durgin, M. D., Chairman of Board of Health.

During the month of June there were 714 deaths, of which 206 were under five years of age. Annual death rate, 16.20 per 1,000. Deaths from diphtheria, 7; scarlatina, 0; typhoid fever, 12; cerebro-spinal meningitis, 10; consumption, 94. Cases of diphtheria reported, 75; measles, 247; scarlatina, 36; typhoid fever, 36.

The number of deaths for the first six months of 1898 was 5,111, as against 5,824 for the corresponding period of last year, showing a decrease of 713 for the first half of the present year. The decrease is not for some particular month, but for every one of the six months. The death rate about 12 per cent. less than for the corresponding half of year of 1897. The decrease in the number of deaths from zymotic diseases—nearly 50 per cent. For the first half of 1897 there were 858 deaths from this cause. For the first half of 1898 there were only 462 deaths—a decrease of 396.

MICHIGAN.—Hon. Frank Wells, President, Lansing; Henry B. Baker, M. D., Secretary, Lansing.

The Secretary reports for the month of July, 1898: Compared with the preceding month, dysentery, cholera infantum, cholera morbus, diarrhœa, inflammation of bowels and intermittent fever increased, and influenza, pleuritis and measles decreased in area of prevalence. Compared with the average for July in the 12 years, 1886-1897, whooping-cough, erysipelas, cholera morbus, consumption, intermittent fever, remittent fever, cholera infantum

and neuralgia were less prevalent. Including reports by regular observers and others, consumption was reported present in Michigan in the month of July, 1898, at 180 places, measles at 73 places, typhoid fever at 45 places, scarlet fever at 44 places, diphtheria at 40 places, whooping-cough at 29 places, and small-pox at 1 place.

Reports from all sources show consumption reported at 3 places more, measles at 34 places less, typhoid fever at 8 places more, scarlet fever at the same number of places, diphtheria at 7 places less, whooping-cough at 10 places less, and small-pox at 1 place more, in the month of July, 1898, than in the preceding month.

Monthly Bulletin of Vital Statistics reports the total number of deaths for July, 2,217, an increase of 162 over the preceding month. The death rate was 11.3 per 1,000 reporting population, as compared with a rate of 11.0 for June. The slight increase in mortality is due to seasonal conditions, which affect the city rates especially, and is probably less marked than in the average year. From consumption, 162—the smallest number reported for this disease since the beginning of registration, and, except for the month of October, 1897, is the first marked fall from the average of about 200 deaths per month. From typhoid fever, 21—decidedly below the average. From diphtheria, 19; scarlet fever, 1; measles, 11; whooping cough, 40; pneumonia, 77; diarrhœal diseases of children, 267; and cerebro-spinal meningitis, 31. The largest increase for the month was from whooping-cough and diarrhœal diseases.

MINNESOTA. Franklin Staples, M. D., President, Winona; H. M. Bracken, M. D., Secretary, St. Paul.

St. Paul, 215,582. A. J. Stone, M. D., LL.D., Commissioner of Health, reports for the month of June: 126 deaths, representing an annual death rate of 7.06 per 1,000. Deaths under five years of age numbered 54. Consumption caused 19 deaths; pneumonia, 18; bronchitis, 3; typhoid fever, 4; scarlatina, 1; diphtheria, 1; measles, 1.

Minneapolis, 225,600.—H. N. Avery, M. D., Commissioner of Health; Miss Edwina J. Peck, Registrar of Vital Statistics. Report for June: Deaths, 128—36 under five years of age; from zymotic diseases, 18; typhoid fever, 5; measles, 3; phthisis pulmonalis, 17; pneumonia, 4. Annual death rate, 8.75. Cases of contagious diseases reported during the month: Diphtheria, 12; scarlet fever, 1; measles, 43; typhoid fever, 48.

MISSOURI.—E. L. Standlee, M. D., President, St. Louis; Paul Paquin, M. D., Secretary, St. Louis.

St. Louis, 623,000—36,000 colored. M. C. Starkloff, M. D., Commissioner of Health, reports for June: The annual death rate per 1,000 during the month was 13.98, this being based on a population of 623,000, computed on census figures of 1890 (460,000), at the rate of four per cent. annual increase. During the month there were 726 deaths. Thirty-one certificates were issued for deaths occurring outside the city limits; these were not included in the monthly statement. Percentage of deaths in eleemosynary and other institutions of a public character to total mortality, 23. Percentage of deaths in city institutions to total mortality, 12.3. White population, 587,000; mortality rate per thousand, 13.05. Colored population, 36,000; mortality rate per thousand, 28.99.

Kansas City, 200,000. A. N. Shirk, Health Officer, reports for June: 176 deaths, of which 50 were under five years of age. Consumption caused 8 deaths; tuberculosis, 10; pneumonia, 9; bronchitis, 0. Annual death rate, 8.08 per 1,000.

NEW JERSEY.—C. F. Brackett, M. D., President, Princeton; Henry Mitchell, M. D., Secretary, Asbury Park.

Death rate for the year 1897, reported by Dr. T. E. Parker, Secretary Associated Health Authorities, July 25:

"From all causes for the year there were 29,882 deaths, giving a death rate of 16.90 to the 1,000 papulation.

"Taking the State by counties, I find that Sussex heads the list as to the lowest rate, it being 11.55. Then comes Cumberland, 11.91; Gloucester, 12.36; Cape May, 12.60; and then in this order:

"Bergen, Ocean, Burlington, Warren, Monmouth, Hunterdon, Salem, Somerset, Union, Morris, Middlesex, Essex, Mercer, Passaic, Atlantic, Camden, and lastly Hudson, with a rate of 19.84."

Newark, 235,000. Health Officer Chandler reports for the five weeks ending July 30. Deaths, 550—302 under five years of age; from diphtheria, 6; consumption, 51; pneumonia, 8. Annual death rate, 24.9.

Paterson, 111,500. J. L. Leal, M. D., Health Officer, reports for June: Deaths, 121—44 under five years of age. Annual death rate, 10.85. Deaths from diphtheria, 3; consumption, 15; pneumonia, 7.

As Bad as Cuba.—Much has been written about the utter disregard of sanitary laws and neglect of sanitary appliances by the

Spaniards in Cuba, the consequences of their neglect being the great mortality every year from yellow fever and malarial sickness. But Spanish misrule in Cuba was never guilty of anything worse than what is now going on along the Passaic River. The stream is an open sewer, into which is discharged all the daily filth of Newark, Paterson, Passaic, Orange, East Orange and other municipalities, besides the refuse from hundreds of factories.

That is certainly bad enough, but conditions are preparing to make the situation worse. The East Jersey Water Company is constructing massive works at Little Falls to divert the normal flow of the river. From thirty to fifty millions of gallons of water daily will be taken out of the river at Little Falls. The effect of this will be to greatly reduce the volume of water in the river below the falls, and correspondingly increase the proportion of filth.

NEW YORK.—Daniel Lewis, M. D., President, New York; B. T. Smelzer, M. D., Secretary, Albany.

The Secretary's bulletin for June reports:

"June is always, next to November, the month of least mortality in this State. With an average daily mortality for the entire year for the past ten years of 320, that of June has been 294. The daily average for the past month, reported, has been 288, that of the five months preceding having been 325. Compared with the preceding month of May, there were 1,100 fewer deaths reported, of which decrease 300 occurred in the maritime district; the death-rate has lessened from 17.15 per 1,000 population to 16.00. There were 130 fewer deaths under five years of age. Aside from diarrhœal diseases, there were 100 fewer deaths from zymotic diseases this month. Diarrhœal diseases caused 250 more deaths than in May. From acute respiratory diseases there were hardly more than half as many deaths, there having been about 700 fewer than in May, and there were 120 fewer deaths from consumption. Diseases of the digestive organs caused more deaths than in May, but other local diseases show a considerable decrease. Accidental deaths, many of which were from drowning, caused an increase of 100 over May. Fewer deaths from old age occurred this month. Compared with June, 1897, there were fewer deaths in all of the sanitary districts, the maritime district reporting 150 fewer, and in the entire State the reported mortality is less by 400, and by nearly as many is it less than the average of June for the past ten years. A large part of this decrease is in the mortality of early life, and one-half of it is in zymotic diseases. There is also a considerable

decrease in acute respiratory diseases. Diarrhœal diseases caused 375 deaths, which is but half the usual mortality for June. Diphtheria caused 175 deaths, or 50 less than in May and one-half that of June, 1897. Whooping-cough caused 111 deaths, the same number as in May and double that of last June. Cerebro-spinal meningitis is also very much more prevalent than a year ago, 110 deaths being reported from it, which is excessive, all the sanitary districts reporting it, but the increase is mainly in the maritime district. Consumption shows the usual June mortality, about 1,000 deaths. Small-pox has developed in no new localities since the report of last month. All of the ten reported localities, except Fredonia and Moravia, are believed to be free from the disease, and these are probably soon to be relieved. Of the fifty cases in all, eight occurred in the troupe importing it; the cases have been generally very mild, no fatality occurring. The mean temperature for the month was one degree above the normal of 66 degrees, the average highest being 90, the lowest 43; there were ten clear days and a slight deficiency for the State in rain-fall, although this was excessive in the eastern part of the State. Winds southwesterly."

New York City, 3,438,899. Michael C. Murphy, President; W. T. Jenkins, M. D., and J. B. Cosby, M. D., Commissioners of Health; Emmons Clark, Secretary; Charles F. Roberts, M. D., Sanitary Superintendent; Roger S. Tracy, M. D., Registrar of Records.

Borough of Manhattan, 1,911,755. Frederick H. Dillingham, M. D., Assistant Sanitary Superintendent; Thomas C. Taylor, M. D., Assistant Registrar of Records. Deaths, 2,733—1,007 under five years; death rate, 17.35; deaths from zymotic diseases per 1,000 deaths from all causes, 232.50; from typhoid fever, 17; scarlet fever, 31; diphtheria, 50; acute respiratory diseases, 354; consumption, 302.

Borough of Bronx, 137,075. Eugene Monogan, M. D., Assistant Sanitary Superintendent; Arthur J. O'Leary, M. D., Assistant Registrar of Records. Deaths 265—78 under five years; death rate, 23.50; from zymotic diseases per 1,000 from all causes, 162.50; from consumption, 74.

Borough of Brooklyn, 1,197,100. Robert A. Black, M. D., Assistant Sanitary Superintendent; Sylvester J. Byrne, M. D., Assistant Registrar of Records. Deaths, 1,575—660 under five years; death rate, 16.00; deaths from zymotic diseases per 1,000

from all causes, 190.00; typhoid fever, 8; diphtheria, 58; acute respiratory diseases, 174; consumption, 200.

Borough of Queens. 128,042. Obed L. Lusk, M. D., Assistant Sanitary Superintendent; Frank Wickham, M. D., Assistant Registrar of Records. Deaths, 196—95 under five years; death rate, 18.00; deaths from zymotic diseases per 1,000 from all causes, 135.

Borough of Richmond, 64,927. Geo. C. Hubbard, M. D., Assistant Sanitary Superintendent; P. Walter Wood, M. D., Assistant Registrar of Records. Deaths, 82—23 under five years; death rate, 15.75; from zymotic diseases per 1,000 from all causes, 85.35.

Total: Deaths, 4,851—1,863 under five years of age; death rate, 17.75; deaths from zymotic diseases per 1,000 from all causes, 152.35; deaths from typhoid fever, 18; scarlet fever, 72; measles, 71; diphtheria, 121; acute respiratory diseases, 574; consumption, 604.

Buffalo, 360,000. Ernest Wende, M. D., Health Commissioner, reports for June: Deaths, 305—91 under five years; death rate, 10.16; from zymotic diseases per 1,000 from all causes, 110.00; diphtheria, 3; typhoid fever, 5; acute respiratory diseases, 36; consumption, 33.

Rochester, 175,000. George W. Goler, M. D., Health Officer. Report for June: Deaths, 158—28 under five years; death rate, 10.98; from zymotic diseases per 1,000 from all causes, 120; acute respiratory diseases, 16; consumption, 16.

Albany, 100,000. Report for June: Deaths, 131—37 under five years; death rate, 15.75; from zymotic diseases per 1,000 from all causes, 115.35; typhoid fever, 1; acute lung diseases, 9; consumption, 13.

The filtration plant now in process of construction, Superintendent Baily reports, will be practically completed this year. All of the underground work is finished, and by January 1, and probably sooner, the people of Albany are promised to have filtered water.

Syracuse, 120,000. Report for June: Deaths, 113—21 under five years; death rate, 11.30; from zymotic diseases per 1,000 deaths from all causes, 116; acute lung diseases, 2; consumption, 13.

North Carolina.—George G. Thomas, M. D., President, Wilmington; Richard H. Lewis, M. D., Secretary, Raleigh.

The July Bulletin summarizes the mortality for June, from

twenty-four towns, with an aggregate population of 153,608—66,010 colored. Aggregate deaths respectively, 239—109 white, 130 colored—representing annual death rates, 15.0; 23.6; 18.7. The causes of death were: Consumption, 16; pneumonia, 5; heart disease, 14; brain diseases, 10; typhoid fever, 16; diarrhœal diseases, 61. Deaths under five years of age, 97—54 colored.

OHIO.—S. P. Wise, M. D., President, Millersburg; C. O. Probst, M. D., Secretary, Columbus.

The State Board of Health has entered upon an investigation of the condition of the Maumee and Sandusky rivers. There are a number of important cities on these streams contributing sewage to or taking water supplies from them.

Cincinnati, 405,000. W. A. R. Tenney, M. D., Health Officer, reports for June: 408 deaths—137 under five years of age. Annual death rate, 12.09. From consumption, 41; pneumonia, 34; bronchitis, 15; diphtheria, 3; typhoid fever, 3; whooping-cough, 5.

Cleveland, 370,000. J. L. Hess, M. D., Health Officer, reports for the month of June: Deaths, 412—157 under five years. From diphtheria, 4; typhoid fever, 11; phthisis and tuberculosis, 34; pneumonia, 52; bronchitis, 10. Death rate, 13.36.

PENNSYLVANIA.—Pemberton Dudley, M. D., President, Philadelphia; Benjamin Lee, M. D., Secretary, Philadelphia.

Philadelphia, 1,240,266. Benjamin Lee, M. D., Health Officer, reports for the four weeks ending July 23: Deaths, 2,291. From diphtheria, 52; typhoid fever, 34; consumption, 160; pneumonia, 78.

"We Drink This Water."—Public Ledger, Philadelphia, July 14.—Dr. Lee, Secretary State Board of Health, reports, in part:

"At Conshohocken, both the canal and Schuylkill river were found to be receiving many kinds of filth. At Plymouth Creek pipes were found conveying sewage laid under the water quarter across the canal, and discharging themselves into the water, which presented the appearance of indigo blue mixed with tar. The odor was such that the committee were compelled to turn away. From this point all the way to Bridgeport the water was thick with decaying vegetable matter and refuse thrown from the houses, and the stench arising therefrom was almost unbearable. Numerous refuse heaps also drained into the stream. The committee found that the further it went up the canal the worse became the pollution. Not only were no means whatever taken to prevent the household drainage and human excreta from entering

the river, but apparently nothing was left undone to perfect arrangements for the conveyance of such matter to the canal. All seemed to consider the canal a common receptacle for everything they wanted to get rid of which might cause disease if allowed to remain on land."

Pittsburg, 295,000. Report for the five weeks ending July 30: Deaths, 619—324 under five years of age; consumption, 34; pneumonia, 21. Death rate, 21.7.

About the streets of this city, says the Pittsburg "Leader," at almost any hour of the day, you may see peddlers of pure water offering their sparkling wares for sale. From place to place the carriers go distributing great bottles to their customers. Here comes a wagon with filtered water; here another with distilled water, and here another with spring water secured from the Howe spring on Fifth avenue, in the East End. All find people anxious to pay the price asked, and thankful that it is possible for them to get water pure enough to drink at any price.

And the taxpayers who pay the city revenues sufficient to insure every convenience and every comfort buy that which is their own—buy drinking water because they are unwilling to risk their lives by drinking the disease-polluted water that is, at the cost of many millions of dollars, pumped into their homes.

Of typhoid fever there have been 818 cases for the first six months of the present year, and 125 in July. There were but 399 in the first six months of last year. The worst is yet to come, for September is the month most conducive to the health of the typhoid germ.

A filtration committee, of several years eixstence, about to make a report, accompanied by a recommendation, gives promise that in the near future a water supply will be furnished the city free from the bacteria that is blamed for the present unhealthy condition of Pittsburg.

July 29: Superintendent Crosby Gray, of the Bureau of Health, is arranging to have a rigid examination made to ascertain the exact cause of so much sickness. The fault either lies in the water supply or with the milk. Superintendent Gray says he will secure the necessary data, showing exactly how many cases there are in the different wards of the city. This will give him a chance to trace the cause.

South Carolina.—Charleston, 65,165—white, 28,870; colored, 36,295. H. B. Horlbeck, M. D., Health Officer, reports for four

weeks ending July 23: Deaths, 154—106 colored. Under five years of age, 40. Annual death rate—white, 21.60; colored, 31.96—29.78.

TENNESSEE.—W. J. McMurray, M. D., President, Nashville; J. A. Albright, M. D., Secretary, Somerville.

Memphis, 61,747—30,317 colored. Herbert Jones, M. D., President; Marcus Haas, M. D., Secretary. Report for June: Deaths, 102—66 colored. Annual death rates: White, 13.74; colored, 26.11—19.82. Deaths from phthisis, 14; pneumonia, 1.

UTAH.—Salt Lake City, 70,000. P. S. Keogh, M. D., Health Officer, reports for June: Deaths, 33. Annual death rate per 1,000, 4.80. Deaths from consumption, 0; pneumonia, 3; diphtheria, 0; whooping-cough, 3.

WISCONSIN.—Solon Marks, M. D., President, Milwaukee; U. O. B. Wingate, M. D., Secretary, Milwaukee.

Milwaukee, 275,000. F. M. Schulz, M. D., Commissioner of Health, reports for June: Deaths, 245—83 under five years of age. Annual death rate per 1,000, 10.69. Deaths from diphtheria, 1; typhoid fever, 3; consumption, 29; other tubercular diseases, 9; pneumonia, 9; bronchitis, 16; other respiratory diseases, 6.

PLAGUE is again epidemic in Bombay. There were 103 deaths from it during the week ending August 13th.

THE WEST INDIAN WEATHER SERVICE was practically inaugurated August 9, when the Washington office received reports from six of the ten observation stations recently established there. Prof. Willis L. Moore said the system was in complete working order. And the department will be enabled to forecast the terrible West Indian hurricanes that for years have swept the Atlantic Coast without warning.

The whole group of islands has been plotted, and meteorological conditions are charted daily at the recently established stations. It was feared that the West Indian service might be hampered by delays in the cablegrams, but Prof. Moore stated that the reports to-day reached the Washington office within an hour and a half after the observations were made.

The vacancy in the Washington Bureau caused by the death

of Prof. Morrill has been filled by the promotion of Prof. H. C. Fankenfield, now on duty at St. Louis, to be National Forecaster, on duty at Washington.

ARMY MEDICAL SUPPLIES.

WAR DEPARTMENT,
Surgeon General's Office,
Washington, D. C., August 12, 1898.

Circular No. 6.

Chief surgeons of Army Corps, of divisions and of smaller independent commands are expected to make timely requisition for medical supplies. It must be remembered that some delay is often unavoidable in putting up supplies at the supply depots and in transportation to the point at which they are needed. In an unexpected emergency telegraphic requisition must be made and supplies will be sent by express; but it must be remembered that this mode of transportation is very expensive and that failure to make requisition in advance of immediate needs entails unnecessary expense upon the government. Division and field hospitals in which typhoid fever and other serious cases are treated should be liberally supplied with all articles necessary for the treatment and comfort of the sick. The field supply table applies only to mobile commands and division hospitals to accompany them on short notice.

GEORGE M. STERNBERG,
Surgeon General, U. S. Army.

BOOK REVIEWS.

MILITARY HYGENE.—A syllabus of lectures delivered at the U. S. Infantry and Cavalry School. By Alfred A. Woodhull, LL.D., Lieutenant-Colonel Medical Department U. S. Army. Pp. 188. Revised Edition. Price, $1.50.—New York: John Wiley & Sons.

This edition is written to correspond with the present army regulations and with the progress of sanitation, and embodies the subjects: Selection of Soldiers, clothing, food, habitations, camps and marches, sewers and waste, water, preventable diseases, and care of troops in the field, with special reference to warm climates.

CONSERVATIVE GYNECOLOGY AND ELECTRO-THERAPEUTICS.—A PRACTICAL TREATISE ON THE DISEASES OF WOMEN AND THEIR TREATMENT BY ELECTRICITY. Third Edition, revised, rewritten, and greatly enlarged. By G. Betton Massey, M. D., Physician to the Gynecic Department of Howard Hospital, Philadelphia; late Electro-Therapeutist to the Infirmary for Nervous Diseases, Philadelphia; Fellow and ex-President of the American Electro-Therapeutic Association, of the Société Française d'Electrotherapie, of the American Medical Association, etc. Illustrated with twelve full-page original chromo-lithographic plates in twelve colors, numerous full-page original half-tone plates of photographs taken from nature, and many other engravings in the text. Royal octavo. 400 pages. Extra cloth, beveled edges, $3.50 net. The F. A. Davis Co., Publishers, 1914-16 Cherry St., Philadelphia; 117 W. Forty-second St., New York City; 9 Lakeside Building, 218-220 S. Clark St., Chicago, Ill.

In this third edition the author has made many additions, bringing it thoroughly up to date, and at the same time lives up to his title—*conservative*. The result is a book for general practitioners as well as for the specialist. It is fully and admirably illustrated with half-tone and chromo-lithograph plates, and handsomely gotten up altogether.

YELLOW FEVER: Its Nature, Diagnosis, Treatment and Prophylaxis; and Quarantine Regulations related thereto, by officers of the U. S. Marine Hospital Service. Prepared under the direction of the Supervising Surgeon-General.—Government Print, Washington, D. C.

A practical brochure of one hundred and seventy-four pages, with special reference to the present emergency, but of enduring value.

It is divided into ten sections: Diagnosis of Yellow Fever, by Surgeon R. D. Murray and Assistant Surgeon John Guitera; Treatment, by Surgeon R. D. Murphy and P. A. Surgeon H. D. Geddings; Hygienic Measures to be Adopted by Persons Living Within an Area of Yellow Fever Infection, by Surgeon H. R. Carter, P. A. Surgeons Eugene Wasdin and H. D. Geddings, and Sanitary Inspector W. F. Brunner; Prevention of the Spread of Yellow Fever, by Surgeons H. R. Carter, A. H. Glennan, Assistant Surgeon Seaton Norman, and P. A. Surgeon J. H. White; Detention Camps and Camps of Observation, by P. A. Surgeon J. H. White; Train Inspection Service, by P. A. Surgeon George

B. Young; Synopsis of Interstate Quarantine Regulations, by P. A. Surgeon J. H. White; Marine Quarantine, by Surgeon P. H. Bailhache and P. A. Surgeon J. H. White; Port-Epidemic Disinfection, circular letters issued by Marine Hospital Bureau relating thereto; Present Status of the Bacteriology of Yellow Fever, by P. A. Surgeon E. K. Sprague.

The last section is a brief summary of the continued uncertainties regarding indentification of the yellow fever bacillus and the fruitless effort thus far to demonstrate any protective power of Sanarelli's antiamurylic serum, or any other.

As for the rest, excepting the two first sections, with reference to diagnosis and treatment, it is a book of extreme measures, justifiable by the too exclusive reliance upon quarantine for the prevention of yellow fever by our Southern seaport authorities, to the neglect of local sanitation.

A HISTORY OF YELLOW FEVER: Indisputable Facts Pertaining to Its Origin and Cause; With an Addendum on DENGUE. By W. L. Coleman, M. D. Pp. 140. Price, in cloth, $1.00; in paper, 50 cts. The Clinic Publishing Co., Chicago.

A better title of this booklet would be, History of an Exploded Theory of Yellow Fever, for such it is. The alleged "indisputable facts" are a rehearsal of fancies, because that, in the early history of yellow fever investigation of its origin and cause went no further than the common observation of its prevalence in the "middle passage" of slave ships, it was supposed to have had its beginning in such ships. This brochure is the more remarkable for its coincidence in substance with "The Ship Origin of Yellow Fever," pamphlet reprint from the *Independent Practitioner* and contributions to the SANITARIAN (Vol. viii.) on the same subject, by Robert B. S. Hargis, M. D., in 1880, of which the author does not appear to have had any knowledge. Moreover, a better acquaintance with the geography and commerce of yellow fever would have enabled the author to avoid the indubitable errors he has committed on the introduction of yellow fever at Rio in 1851-2 and at Callao and Lima in 1851-3. It had nothing to do with "contraband ships, seeking a market for their cargoes" (at Rio) "after being driven from the ports of nearly all other countries, that began to arrive there in 1849" (p. 36): nor with "the arrival of fifty ship-loads of Chinese coolies, who were brought over" (to Peru, p. 29) "by contract, as the Africans had been, in badly equipped and overcrowded ships, and most of

them suffering terribly with dysentery." Overcrowded and filthy ships are always sickly ships, ever liable to infectious diseases; to become infected, to retain and to communicate infection. And these conditions fully account for the introduction of yellow fever at Rio in 1849-50, and at Lima shortly thereafter, independent of any such far-fetched explanation as the above citation. The facts in the case are that, on the termination of the Mexican war, in 1848, many of the contract and other vessels that had lain in the harbor of Vera Cruz in 1847, and had become infected with yellow fever, were quickly taken up, without having been disinfected, by the gold-fever commerce to the Pacific, most of them touching at Rio by the way. Coincidently with these arrivals at Rio in 1849, a fever began to prevail there, which, from some peculiarity of the symptoms, was called "polka"; but it was shortly discovered to be a precursory form of yellow fever, that developed with great severity, by which many ships lost their whole crews. Nothing daunted, however, other crews were shipped, and the voyages resumed. How many of them arrived on the Pacific infected, and touched at places where yellow fever soon after for the first time prevailed, is uncertain. But a few of them were traced, *e.g.*: The steamship "New World," about the middle of the year 1851, on her way to California, touched at Callao, after having lost many of her crew by yellow fever, and shipped others instead at Rio. The steamer "Quito," also during the same season, lost several of her crew by yellow fever at Rio, shipped others and proceeded to the Pacific, and arrived at Callao in April, 1852. The first German emigrant ships arrived at Callao December, 1851; whether these had also touched at Rio, or were otherwise infected, is questionable. But it is certain that soon after the arrival of the Quito at Callao, a fever began to prevail in Lima and along the coast in the vicinity which was at first designated "pelusá," which speedily developed into yellow fever, just as in 1849 the precursory form of fever which prevailed in Rio was called "polka."

The book before us gives occasion for these remarks in contravention of its contention not only, but because they are suggested by uncertainties that are more or less common to the first outcroppings of yellow fever everywhere. Dengue and other malarial fevers are more or less common to the same localities as yellow fever, and the subjects of these diseases—in the same localities—are more liable to yellow fever than other persons. Hence

the confusion in diagnosis, and the contention of some inexperienced observers that yellow fever is only an aggravated form of malarial fever. In this regard, the book before us is a safe guide, but in nothing else.

CONTEMPORARY LITERATURE.

LIFE IN MANILA.

Wallace Cumming writes an article on "Life in Manila" for the August "Century." Mr. Cumming says:

Our firm had a mess-house, in which the partners lived, and which was open to all their American and English employes. Should the latter prefer to live elsewhere, one thousand dollars a year was allowed as the equivalent. I lived at the mess, finding it much the more comfortable. Indeed, it would have been hard to be dissatisfied with our way of living; and as it will show the style in which the great American houses in the East are conducted, I think it worth telling with some detail. The mess was a fine house, handsomely furnished, in one of the pleasantest parts of the city. The table was supplied by a Chinese cook. He was allowed five hundred dollars a month, and given certain of the heavier groceries, such as flour, rice, etc. He paid his undercooks, and was responsible for meals at the mess, and for breakfast (like the French *dejeuner a la fourchette*) and afternoon tea, which were taken at the office by all the employes, except on Sundays and fiestas. Then there was a majordomo, who had control of all servants and had charge of the house. There was also an extra house-servant, and a Chinese porter, who opened and shut the great house doors, filled the baths, pulled the punka, and watered the street in the dry season. Then every one had a personal servant, who took care of his room, attended to his clothes, waited on him at table, prepared his early breakfast (about 7 A. M.), and so on. Everybody also owned a horse or horses, which involved one more servant at least. Being a junior, I contented myself with one pony and a two-wheeled trap, something like a dog-cart. The others drove victorias and pairs. Three of our mess owned racing-ponies, which inured to my benefit, as it gave me as much riding as I wished. After the bath and an early breakfast came the drive to the office, between 8 and 8:30 o'clock; then work till 12:15, at which hour breakfast was served at the

office; then work again until 5:30, interrupted between 3 and 4 by afternoon tea; then to the bungalow to dress, to drive, and back to dinner at 7:30.

To a lover of music Manila is a charming place. The natives have wonderful musical talent, and there were numerous bands. Those of the three regiments then stationed there were remarkably good; and four afternoons each week they played in turn on the "Luneta," a sort of plaza on the shores of the bay just outside the old walls. I recall vividly the open-air concert, by three hundred instruments, given in honor of Prince Oscar of Sweden. The glorious full moon of the tropics, far brighter than in more Northern lands, shining on the quiet waters of the bay, the innumerable lights, the brilliantly dressed crowd, and the thrilling music of the mighty bands, softened in volume on the great plain, combined to make it an occasion to be long remembered. The "Battle of Castelejos," which they played, was inspiring, and the effect was heightened by the repetition of the trumpet-calls by soldiers who were stationed at intervals far off upon the plains, while the guns on the city walls added a touch of reality.

During the height of the rainy season, from about the middle of June to the middle of September, all outdoor pursuits are suspended. The violence of the downpour is hardly to be imagined by dwellers in higher latitudes. The streets in Manila, and some of the roads for a few miles outside, are fairly good during the dry season, but quickly become nearly impassable when the rains set in. As I have already mentioned, Manila is intersected in all directions by creeks, which are traversed by hundreds of canoes. These canoes are dugouts, often of great size, and the natives are most expert in handling them. They are indispensable at times when vast floods come down from the great lake, about thirty miles from Manila, of which the river Pasig is the outlet. One storm will sometimes raise the river and overflow most of the city. After a few hours' rain I have gone direct from our steps into a *banca* (canoe), and been paddled through the streets to the office.

CHARACTERISTICS OF SUMMER COLONIES.

The summer hotels and cottages are now full. Newport, Bar Harbor, Southampton, and Lenox have each its complement of old habitués and strangers. Many of these persons are, if not exactly intimates in winter, at least acquaintances who interchange certain social functions, and who are in the habit of meet-

ing one another on more or less friendly terms. But when the spring opens they separate, governed in their choice of a summer home by individual tastes and limitations, which, by general consent, seem to be each man's privilege to indulge when warm weather sets in. It is the exercise of this privilege, no doubt, which gives to every summer colony the distinct personal note or character to which we have just alluded. At any rate, the most careless of observers must have noted for himself not only this difference between them all, but a certain pride in them as well. At Southampton they have settled down with the conviction that good feeling and comradeship prevail, and that without the ostentation which characterizes some other places they are able to get out of life all that it can yield in the way of both comfort and pleasure. Bar Harbor prides itself on its traditions, and in its proud evolution from the free-and-easy laxity of other years; it still believes that it has retained some understanding of how to combine the old freedom and joy of out-door life with the exactions of the conventional, to which no other place along the coast can lay claim. Newport, by common consent, is regarded as a distinct world in itself, with its own standards of excellence, and the ability to maintain these without the necessity of regarding those which govern in any other place—the test *par excellence* of a social supremacy.

And yet, although each community prides itself on its distinctive quality and its unlikeness to others, individuals who compose it find themselves obliged to yield, after a little, to the prevailing tone, so that real independence of life is lacking. This independence, indeed, is never possible, and the only persons who find it in summer are those whose establishments are in remote neighborhoods, away from the dominating influence of communities and distinct "sets."—"Harper's Bazar."

THE TRUTH ABOUT CONVICTS IN SIBERIA.

The most conclusive evidence as to what the life of the average convict really is is furnished upon the best of evidence by the convicts themselves, who certainly ought to know when and where they are well off. Not more than one-fourth of the exiles, when their time has expired, elect to return to Russia, whither they are attracted by that love and attachment to home so strong in every human breast, so particularly strong in the Slav. The fact is that they have found life in Siberia pleasanter, the road to ease, a com-

petency, and even to wealth, less rugged, less crowded with competitors; so they become colonists, and of their own free will and choice remain in Siberia, throwing their fortunes in with the destiny of the new land; and I, knowing something of the conditions of life which obtain in Russia, think they do well.—From "The Convict System in Siberia," by Stephen Bonsal, in Harper's for August.

A STORM CENTRE.

Lieutenant John M. Ellicott, U. S. N., contributes to the August "St. Nicholas" an article on "The Cradle of Cyclones." Lieutenant Ellicott says:

When caught in a cyclone, a seaman must determine as quickly as possible the whereabouts of the centre of the storm, and the direction in which it is moving. The first is easy to find out, for if it is remembered that the wind is blowing around a vast circle, in a direction opposite to the movements of the hands of a watch, one can face the wind and know that his right arm, extended, is pointing nearly toward the storm's centre. Thus, when the wind comes from the east, the centre is to the south.

Now to discover which way that centre is moving we must wait for the direction of the wind to change. If the direction from which the wind comes changes gradually toward the right, the wind is said to "haul." If it changes to the left the wind is said to "back." If, then, our gale backs, and we continue to face it, our right hand, always pointing toward the centre, has swung around to the left, showing that the centre is moving from right to left. If the gale hauls, its centre is passing from left to right. If the wind neither hauls nor backs, but persistently blows from the same direction with increasing violence, the centre is approaching in a straight line.

When in a cyclone, it is a seaman's endeavor to avoid its centre; for, like the swirling water around the hole in the tub, the motion is more rapid, the hurricane more violent, as we approach that centre. Sometimes, like the hole in the water over the place where it runs out of the tub, there is a dead-calm centre, for the air all around it is rushing upward; but woe betide the foolish or unfortunate captain who gets his vessel there! Into that confined circular area the waves have been lashed and driven like countless wild cattle into a corral. Like cattle, those confined waves madly turn hither and thither, leap upward, and pile upon one another; for around them sweep, in endless circles, the regu-

lar, onrushing seas of the storm. A ship in the midst of these confused seas knows not which way to turn to meet them. They leap about her with demoniac frenzy, falling in mountain heaps upon her decks, until, perhaps, she is swamped and sinks.

The discovery of the direction of motion of a cyclone's centre may be a matter of hours, or even of days; for the storm may be of such vast area, and traveling so slowly, that the wind blows from the same direction for a long time. Once discovered, it is a seaman's endeavor to cross the storm's path, if cross he must, behind the centre instead of in front of it. In the southern hemisphere cyclones revolve right-handedly, and move toward the south pole, so what is here told must be reversed to fit storms in that part of the world.

If a ship has left port in good weather, the captain will be warned of a storm by his barometer. You know how in that instrument a column of mercury is balanced by the pressure of the outside air. When, therefore, the barometer falls steadily hour after hour, a sea captain knows that his ship is approaching a spot where the uprushing atmosphere of a cyclone's centre is making the air around it thin and light. Then he must watch and wait for the wind to tell him which way the storm is going.

THE MANUAL TRAINING TEACHER.

The best work of the world is done without pay, the sacred work that asks no pay—the work of the mother, the work of the enlightened ones—but where the work *is* paid for, the rate of pay is a pretty sure gauge of the estimate that is placed upon the work. Now, in some of the manual training schools, the salaries in the manual departments are notably less, I should say about twenty per cent. less, than the salaries in the academic departments. This seems to me a grave mistake. If manual training is to be put forward as a serious educational scheme, the teachers of manual training should be men and women quite as carefully educated, quite as acceptable in their language, quite as broad in their sympathies, quite as elevated in their morals—in a word, in every way as cultivated as the teachers of language and science and mathematics. And the first practical step in bringing about this equality of requirement would be to inaugurate an equality of pay. The manual teachers should get precisely what the academic teachers get.—From "The Philosophy of Manual Training," by C. Hanford Henderson, in "Appletons' Popular Science Monthly" for August.

NEW YORK'S DEAD.

The dead of London require an annual waste of 23 acres of valuable ground. If 4,000 corpses are crowded into the space of one acre, the limit in the case of the most populated graveyard, and if we accept the present rate of mortality, 20 per 1,000 inhabitants, as the standard, New York, with a population of 3,500,000, would have to provide room for 70,000 corpses, and would require annually 17½ acres to bury them in. Unless the custom is changed the available room in the vicinity of all large cities will gradually be absorbed by remains of the dead.

In considering the welfare of individuals, the expenditure of one may benefit another, but citizens should be treated on equal terms. With the exception of Greenwood, almost all cemeteries used in the neighborhood of New York are either poorly managed by churches or administered for the benefit of a few fortunate shareholders. The rural cemetery law, as amended in 1879, allows them to divide among themselves the net profits from the sale of plots. Realizing about twenty thousand dollars for an acre, which hardly cost two thousand, their investments bring large revenues, and are esteemed valuable. By assuming the guise of benevolent societies, owners succeeded in evading payment of the taxes which their less fortunate neighbors are obliged to pay. The trustees are never called upon to make reports to the State, and they give but scanty information to their stockholders.—From "Graveyards As a Menace to the Commonweal," by Louis Windmüller, in "North American Review" for August.

An interior view of existing political conditions in Italy, and especially of the crushing financial burdens which are the cause of widespread discontent, is given in an important article translated from the leading Italian review, the "Nuova Antologia, in "The Living Age" for July 23.

The frontispiece of the August "Open Court" is a half-tone portrait of the French philosopher Rene Descartes; the portrait is accompanied by a biographical sketch of Descartes, containing extracts from a forthcoming work on "The History of French Philosophy," by M. Lévy-Bruhl, Professor in the Collège de France. Finally, Mr. Theodore Stanton has an article on the "Social Museum of Paris," which was founded by the Count Chambrun.—Chicago: "The Open Court" Publishing Co.

THE SANITARIAN.

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NUMBER 347.

RELATION OF THE PUBLIC SCHOOLS TO PUBLIC HEALTH.*

BY C. S. CAVERLY, M. D., President State Board of Health of Vermont.

What relation do our public schools bear to the common infections? We all know that scarlet fever, diphtheria and whooping-cough are contagious. Add to these consumption, tonsilitis, inflammation of the eyes and common head colds, and you have a list of diseases all common to our State and all liable to be in the schoolroom. A child suffering with any one of these diseases is a source of danger to other children with whom he is confined. I need not speak in detail of all these infections; you all know that a case of scarlet fever or of diphtheria, of measles or whooping-cough may infect a whole schoolroom. We are not as apt to consider some of the others in this light.

Consumption is as truly contagious as small-pox. Its virus or germ is especially numerous and virulent in the expectorated matter, and this in the dried form quickly becomes a part of the atmospheric air in the form of dust, wherever these patients are confined. Consumption occasionally finds victims among school children; it is not unusual among school teachers. I need not enlarge upon the seriousness of the danger these may become to those with whom they are confined six hours a day. This disease is so insidious in its onset and so chronic in its course that the patient is often able for months to be about and attend school. In this con-

* Read at the Summer Schools Meeting of Rutland and Bristol, August, 1898.

nection I should say that one of the most important rules a school teacher can make and enforce is, "Do not spit in the schoolroom." Such a rule would not only tend to prevent the dissemination of the germs of consumption, but also those of other infections of the upper air passages. No case of consumption should be allowed to attend school, but owing to the difficulty of making an early diagnosis one will probably now and then be found there. For this reason every school teacher should know the nature of the disease and enforce such general regulations as will minimize the danger to others.

Ophthalmia, or inflammation of the eyes, is another contagious disease that occasionally spreads through the schools. Teachers should be watchful of the pupils' eyes and any unusual redness or discharge should call forth a warning to the parents.

Sore throats of all kinds are dangerous in the schoolroom. Teachers cannot always recognize them, but any complaint on the part of a pupil of this kind should cause an investigation. It is often a difficult matter for a doctor to distinguish at once between a simple tonsilitis and true diphtheria. Either is contagious and every case of either should be at home in the doctor's care.

Scarlet Fever.—There is no question of the school influence on the prevalence of infectious diseases. All statistics are in harmony on this point. The medical officer of the city of London divides the cases of scarlet fever reported in that city into three groups; those under three and thirteen years and those over thirteen years. He compares the prevalence of the disease among these three groups for the month preceding vacation, the vacation month, and the month after the opening of the schools:

	Per cent.
Under 3 years, decrease in the holiday month	1
Three to 13 years, decrease in the holiday month	26
Over 13 years, decrease in the holiday month	13
Under 3 years, increase in the month following vacation	4
Three to 13 years, increase in the month following vacation	65
Over 13 years, increase in the month following vacation	26

These figures show very slight fluctuations in the prevalence of this disease among children under school age. Among those of school age, however, there is a large decrease in the prevalence of the disease during vacation, and an even larger increase with the opening of the schools.

Medical Inspection.

Some of our cities have adopted a system of medical inspection of the public schools, with a view to detecting and excluding contagious diseases. The first quarterly report of the inspectors of the New York city schools showed that 2,627 children were found to have parasitic diseases of the head. There were over 700 cases of contagious eye diseases. One hundred and seventy-five had skin diseases, 91 diphtheria, 51 measles and 20 scarlet fever.

In Boston during the first year of systematic medical inspection of the public schools 437 children were found to be suffering from contagious and infectious diseases. The experience of these cities is not exceptional.

Many children are constantly in our public schools whose presence is a menace to the health of other pupils. The children are innocent and the parents likewise, but this fact does not relieve the situation. It must be remembered that all the infectious diseases may exist in mild form; many children have diphtheria, scarlet fever and other very dangerous diseases in so mild form as to escape the notice of parents. Yet these mild cases may give a very malignant form of disease. Hence the importance of early recognition of the presence of these diseases in school. It is hardly expected that our rural state will adopt the methods of the large cities. If, however, our schools cannot have regular medical inspections, school teachers can give their pupils sufficient attention and can know enough of these diseases so that many early cases of scarlet fever, measles and diphtheria can be recognized soon enough to protect their school. Teachers should be on the alert for such symptoms as these: a cough, which almost invariably precedes measles, or which may mean whooping-cough or more serious lung disease; a nasal. eye, throat or ear discharge, which may mean half-cured diphtheria or scarlet fever, or threaten sight or hearing; a rash, which may be from contagious disease, acute or chronic; a swelling of glands in the neck, which may be either tubercular, diphtheritic or scarlatinal, and in either event dangerous. Do not be timid about calling parents' attention to these symptoms. It may save other lives and be of the greatest benefit to the innocent patient.

Why is it that schools are so apt to spread infection? Chiefly, perhaps, because they are filled with children. Another factor is poor air. I shall show you that our school houses are almost absolutely lacking in ventilation, and I know of no more prolific culture

medium for the average germ than impure air, and there is certainly no commoner vehicle for its transmission. Still other factors in the spread of these infections in the schoolroom are drinking cups, slates, pencils and sponges, and even books. Slates, slate pencils and sponges should be banished from the schoolroom. Each pupil should have his own supply of pens, paper and lead pencils; these should not be passed about. Each pupil should be supplied with his own drinking cup and taught to use it and no other. Accurate observation has shown that these means of distributing infection are real. While, to the careless observer, the dangers here described may seem remote, and the precautions rather burdensome, no one will deny that the saving of a life now and then argues strongly in their favor. Compulsory school attendance and public ownership of school buildings place a responsibility upon our school boards, and make it imperative that they adopt every reasonable precaution to guard the children's lives. In the march of progress our duties and responsibilities increase in all directions. We are justly proud of our public school system. It must not be allowed to lag, and whatever protection modern research discovers, for the lives and health of the children, must be fully utilized, not only in the home, but in the school.

Our public schools are closely associated with the public health, in the influence they exert upon the general growth and development of our future citizens. From the beginning to the end of his school life the pupil's body, his special senses and his vital organs are growing with his mind; from first to last the child's physical condition should receive as much care as his mental.

The "Machine" System.

Our public school system has been styled an educational "machine," a "factory" for the making of citizens. I am not competent to say whether these terms are strictly applicable to our Vermont schools, but I believe that the "machine" tendency, where it does exist, is apt to do injustice to a considerable number of pupils. The individual is lost sight of in the aggregate of material on which the "machine" works, with the result that there is much variation in the finished product. The law requires children of a certain age to be in school. Thereafter, age and mental acquirements are the two factors which the schools consider; the pupil is graded, seated and generally managed according to these. Physical peculiarities and imperfections are apt to be overlooked.

I suppose the school curriculum—the range and number of studies, the hours of study and the discipline—is based upon the supposed capabilities of the average; that the school plan cannot be made sufficiently elastic to suit the brightest and the dullest, the strongest and the weakest. Is it not true that the curriculum is oftener above than below the average; that children of moderate and inferior endowments are kept under too high pressure; are discouraged by ineffectual efforts to keep up; that the efficiency of the schools is apt to be gauged by the curriculum outlined in printed reports rather than by the thoroughness with which the courses are mastered? I mention these things because I believe they have a bearing on the relation the schools sustain to the healthfulness of the scholars. The physical side of the child's nature should, from the first, enter into the estimate placed upon his scholarship; it should be considered in his grading, seating and schoolroom management. The individual should not be lost in the aggregate mass. Such consideration should especially be regarded in the lower grades and among the girls of the higher. The ideal plan would require that all pupils should, at the beginning of the school year, be examined by competent physicians. Such an examination should include eyesight, hearing, condition of the heart and lungs, and general muscular and organic development. It should be sufficiently searching to discover a spinal curvature, St. Vitus' dance, epilepsy or so-called scrofulous tendency. This examination should be repeated regularly each year, and records kept, from which comparisons can be made and the physical progress of the child noted. From these data, as well as from the usual mental examinations, assignments of school work should be made; and from them, too, can we gain some idea as to the success of the schools.

Something About Eyes.

We hear much about the increase in the use of eyeglasses among school children. Children's eyesight has of late, and very properly, received marked attention, and voluminous reports come from many cities of the results of examinations of the eyes of school children. There is no doubt many more children wear glasses now than formerly; there is no doubt that the increased attention given to eye defects accounts somewhat for the increase of spectacle wearers, however, among children; and it is equally true that certain schoolroom conditions contribute to the same result. Some of these are bad air, poor light, improperly located blackboards

and too much blackboard work, poorly adjusted desks and poorly printed books. Like all physical defects, errors of vision should be recognized early. The school teacher has exceptional opportunities for doing this. Teachers can readily acquire the rudiments of eye-testing and be able to detect with a fair degree of accuracy defects in the vision of pupils.

This work has been systematically done in many cities of this country, and with good results. To illustrate, let me briefly cite the plan followed in Minneapolis. A superintendending oculist once each year delivers a lecture upon the anatomy of the eye, and its refractive errors, to the principals of the schools, demonstrating at the same time the methods of testing the eyes upon a certain number of pupils. Cards are issued to each principal with these instructions:

The examination should be conducted privately and singly, in a room apart from the general school session.

Ascertain if the pupil habitually suffers from inflamed lids or eyes. Place the card of Snellen's test-types on the wall in good light. The line marked XX—20 should be seen at 20 feet from the card; therefore place the pupil at that distance from it.

Each eye should be examined separately.

Have the pupil begin at the top of the card-test and read aloud down as far as he can, first with one eye and then with the other. If the pupil does not habitually suffer from inflamed lids or eyes, and can read a majority of the XX—20 test-type with each eye, and does not, upon inquiry, complain of habitually tired and painful eyes or headache, after study, his eyes may be considered satisfactory; but if he habitually suffers from inflamed lids or eyes, or cannot read a majority of the XX—20 test-type with both eyes, or habitually complains of tired and painful eyes or headache after study, a card of information should be sent to the parents or guardian.

The first examination of the Minneapolis school children under this plan resulted in finding 8,116 with defective vision out of 25,696 examined—i. e., 32 per cent.

I cite this city's experience somewhat in detail because it is a fair example of what a city may do in this line of work, and because the plan is practicable and inexpensive. The whole cost to the city was less than $100.

The further practical question suggests itself in this connection, if our schools are really contributing to defective eyesight, what are the causes and how may they be removed?

Without seeking to answer these questions specifically, it is sufficient to remark: That the schoolroom should be lighted from the left side or left and rear, and abundantly lighted. Blackboards should be a lusterless black, and should not be allowed to become gray with use; they should never be between windows, but opposite. Copying from blackboards should not be practised. Text books should be selected for their typographical excellence among other qualities. Desks should be adjusted as to distance and angle to suit the eyes in an upright position. Schoolroom light should be so controlled, by means of window shades and the color of the walls, that the child's eye shall never be dazzled either by direct sunlight or its reflection.

Concerning Ears.

Defective hearing is another symptom frequently seen in the schoolroom about which teachers should know something. Pupils are sometimes considered backward and stupid whose worst fault is their deafness. This is not as common, probably, as defective sight, but it is quite as apt to be neglected and to lead to disastrous results. Head colds, diseased conditions of the pharynx and tonsils, and discharges from the external ear are all common with children in this climate, and are all prolific sources of permanent deafness.

The teacher is in a position to detect this symptom early, and should investigate every case of apparent inattention and stupidity, especially if it is noticed that this is accompanied with persistent mouth-breathing.

The teacher can easily inform herself about a child's hearing, and quite accurately; thus, a child should be able to hear words spoken in a clear, low voice twenty feet away, and should be able to hear a watch tick three feet from either ear. Children with defective hearing should, of course, be seated near the teacher's desk. Parents' attention should always be called to this symptom, for it is usually possible to cure it when early treatment is instituted. Neglected, it is very sure to become permanent.

I have mentioned this subject of eye and ear defects somewhat in detail, because they are becoming so common among the young, because early detection is so important, and because the teacher has exceptional opportunity for observing them.

Competent authorities estimate that 3,500,000 of the 14,000,000 children in our public schools have defective eyesight. I do not know what proportion have defective hearing, but observation teaches me that it is much more common than is usually supposed. Either defect handicaps the child in the battle of life, and the schools should be relieved of the suspicion of contributing to them and should adopt every reasonable precaution to detect and remedy them.

Physical Education.

Physical education should have a place beside mental in our school system. No scheme of school work is well balanced which omits the former. Play and gymnastics are important parts of the school routine.

Here are some remarks of Prof. Joseph Baldwin, an author and educator of Austin, Texas:

"Recreation makes the best work possible. From infancy to age play is a boon to all workers. * * * We may easily quadruple the value of our schools by studying to keep the pupils fresh. * * * Strong men find recreation a necessity; how much more must immature pupils play as well as work and thus grow. * * * The hygienic and educative benefits of the hourly recess are incalculable. * * * Gymnastic exercises when adapted to the pupils and well managed are educative as well as hygienic. They develop habits of exact obedience, train pupils to work in harmony with others and give artistic command of the body. Gymnastics require considerable effort, and hence do not take the place of the spontaneous plays of the recess."

Another author says: "Calisthenics may be very genteel and romping very ungenteel, but one is the shadow, the other the substance of healthy exercise. Girls need health as much, nay more, than boys. They can only obtain it as boys do, by running, tumbling, by all sorts of innocent vagrancy."

With characteristic precision, certain German teachers have devised means of measuring fatigue in school children. Dr. Kemsies, the head master of a large German school, is thus quoted by the "British Medical Journal":

"The best work of the week is done on Monday and Tuesday (after the Sunday holiday). On Tuesday afternoon the work has already begun to deteriorate. * * * The first two hours of the day produce the best work; after the midday meal there is a marked falling of. If the individual lessons last longer than two

hours, the greater part of the class suffer from fatigue; a recreation interval after each two hours' lesson is recommended before the next lesson begins. After the holidays the quality and quantity of work are markedly increased."

These quotations express very concisely truths that should be heeded by our school boards. Regular, systematic gymnastic exercises should be practised in all grades, when possible, in the open air; when this is impossible, in rooms with windows wide open; this should not supplant spontaneous play, however. Do not curtail the recess, but make it fifteen minutes long, and, in the lower grades, one each hour.

School Houses.

Finally, not the least important feature of our public schools, from the health standpoint, is school architecture. The school house should be planned as to site, internal arrangements, heating, lighting, ventilation and sewerage with as much, nay more, care than our houses and other public buildings.

We are familiar with the school house of old, which was proverbial and severe in its simplicity; the square, bare walls, wooden benches, box stove, its primitive ventilation and other sanitary or unsanitary arrangements. Most of us made its acquaintance as pupils of teachers, and while we may not speak with disrespect of the lessons there taught and learned, we cannot fail to recognize the disadvantages of the surroundings. Most of our larger towns and cities have done something to remedy the architectural defects of their school buildings, but there are still many of the old style in our rural districts.

There are signs of an awakening interest in this subject among the people. Our last Legislature took a long step in the right direction when it passed the following law:

"Sec. 1. The State Board of Health shall, within a reasonable time and as often as it thinks it is necessary, issue a circular letter to the local Boards of Health, giving the best information as to lighting, heating and ventilation of school houses.

"Sec. 2. Local Boards of Health shall make, under the direction of the State Board, a sanitary survey of each school house, and report the same to the State Board. The said local boards shall report at each March meeting to the voters of their town the sanitary condition of the school houses.

"Sec. 3. All school houses hereafter built shall be constructed, in respect to heating, lighting, ventilation and other sanitary ar-

rangements, according to regulations furnished by the State Board of Health."

In compliance with section 1 of this act the State Board of Health has issued a circular letter, giving such information as to the location, construction and furnishing of school houses as seemed especially applicable to country districts. The details of schoool house architecture here given are necessarily brief and rudimentary. They are intended simply to encourage thought in this direction, without giving a bewildering assortment of details. Economy dictates that the planning and construction of school houses in large and populous districts shall be intrusted to competent architects.

Our school houses have too often been built with utter disregard of the fundamental principles of sanitation. Heating, lighting, arrangement and kind of seats, position and material of blackboards, air space and other details, have been largely neglected. Ventilation is still almost unknown, even in recent construction. There are many school buildings scattered about our rural State that date back fifty years or more. Yet they are still in use, with their primitive appointments.

It may be that necessary economy compels the use of these old structures in some instances, but I am sure there are few towns in our State that cannot afford more comfortable and healthier housing for their children. Many of these school houses are not only bare, comfortless structures, but they lack the most ordinary sanitary conveniences. I feel certain that the voters, and especially the parents, in many of these country school districts are ignorant of the conditions I mention, or possibly they reason that what was good enough for them should suffice for their children. It is hoped that the law I have cited will awaken an interest among these districts, and that health officers will make complete and convincing reports to the March meetings on the sanitary conditions of the country school houses.

This law requires health officers to report to the State Board of Health the results of their sanitary surveys. The first reports under this law are just published, and they disclose some interesting facts.

The number of school houses and rooms of which reports are made is 662. A careful compilation of some of the figures given shows that these school houses are planned to give, on the average, 165 cubic feet of air space to each pupil. This is rather below the

standard set by good authorities, i. e., 200 cubic feet; still, considered together with the following figures, we see that our school children are, as a rule, amply provided for in this respect. The actual air space, based on the actual school attendance, is, on the average, 280 cubic feet per pupil. These figures admit of this conclusion—the average Vermont school house was planned with fair provision for air space; thinned school attendance, due no doubt to decreasing population, has resulted in each pupil having abundant room. Our school houses are not then overcrowded as a rule.

The reports as to ventilation are as follows:

Number of school houses (and rooms) with no other ventilation than doors and windows..... 475
Number of school houses (and rooms) with some provision for removing foul air..... 187

A very few have also provision for introducing fresh air, though it is impossible to state the figures.

These reports indicate that over 40 per cent. of our school houses have no special provision for changing the air of the room. As a matter of fact, the number that lack any adequate ventilation is much larger than this, for the simple removal of foul air or openings in the top of the room for this purpose does very little toward changing the air. Of the 187 reported as having some kind of foul air outlet, most are reported as having a register or opening in the ceiling, which we know to be useless for practical ventilation. The number of Vermont school houses provided with adequate ventilation is exceedingly small. It is fortunate, then, that the air space is so generous, though even this is entirely inadequate to insure pure air for the scholars during a session of school.

Perhaps it is not to be wondered at that our school buildings are so lacking in ventilation when it is remembered that our houses and our other public buildings are also in the same condition. In a climate where the greater part of our lives are spent indoors this detail is more important than in warmer latitudes, yet most building is done apparently with the purpose to make a structure as impervious to outside air as possible. The children need pure air more than their elders. It is an important element in their growth and vigorous development. Pure air is as necessary to health as pure food or pure water. Nothing could be

more repulsive than the thought of imposing the same food repeatedly upon the stomach; yet we practise the same imposition upon our lungs when we shut ourselves up in unventilated rooms. Fresh air should be no luxury to Vermont school children; they should not be compelled to subsist six hours a day on stale air or to shiver in draughts. School houses can be ventilated with very little expense. The circular issued by the State Board of Health gives a description of what has been termed the "jacketed stove," which is well adapted to one and two room school houses. Other and more elaborate systems, connected in various ways with heated flues, or flues fitted with fans, are in successful use in larger buildings.

In constructing new buildings it is urgently hoped that our school boards will give more attention to this detail of construction, and steps should be taken to remedy existing defects in this respect. This sanitary survey of our school houses reveals these facts about the seating of the scholars:

Number of school houses (and rooms) having "patent" or "chair" seats	387
Number described as "common," "ancient," "old style" and "plain seats"	167
Number equipped with "board" or "wooden benches"	77

None of these reports speak of adjustable seats or desks, though it is inferred that those mentioned as "patent" are usually adjustable.

These figures indicate that fully two-thirds of our schoolrooms are equipped with some kind of modern seat, and that the remainder are but indifferently provided for. The school seat and desk should be adjustable, and not only that, but they should be adjusted to the pupil every year at least. The age and grade of the pupil are not safe data on which to decide the size and height of his seat. It may be possible to say approximately how high or large the seat and desk may be for grammar school or intermediate pupils, but the size and general development of the pupil should modify these estimates.

Vermont school houses are generally poorly lighted. Many reports show that the windows are in front of the pupils, and many more that the light comes from both sides. Schoolroom windows should admit the light from the rear and left of the scholars, and

blackboards should never be between windows. Window shades should be arranged to suit the light to the room at different hours of the day.

There is no doubt that much has been done of late to improve the sanitary condition of our school houses, and as new ones are built and old ones reconstructed, some of the worst defects of the old-time school building are being eliminated. The worst defect of all, however, viz., poor ventilation, still receives little attention. The atmosphere in many of our schoolrooms in winter, after school has been in session for an hour, is almost intolerable to one coming from the outside air. Heating, lighting, seating and plumbing are important details of school house construction, but more important than either is ventilation.

I am aware that you who are teachers are equal sufferers with the pupils from the conditions described, and that you are equally helpless to remedy them. Still the architectural features of the schools have an important bearing upon the subject under discussion. The responsibility for these things primarily rests with the public, and the combined efforts of teachers and sanitarians should be directed to educating public sentiment.

It has been proposed and practised, I believe, in some States, to teach public school children the common facts about infectious diseases, their nature and methods of spreading, and also the rudiments of house hygiene. This is all right. Our public schools, however, should be object lessons themselves, in their construction and management, of practical hygiene, and unless they are any theoretical instruction in this direction would be largely useless. Our children should know that their physical condition is under constant observation; they should become familiar with cleanly surroundings, good light and wholesome air, as well as with the mysteries of the "three Rs."

Such practical instruction will bear fruit in years to come when a generation shall grow up educated in body and mind, familiar with cleanliness and order, and physically as well as mentally equipped for life work. The good results will be everywhere apparent in the home, the community at large and in the State.

The public schools and the public health are both in the care of the State; both are important departments of State government. The public health is quite intimately related to the schools and very dependent on their administration.

I am glad to testify at this time to the active interest which our school teachers and school boards have generally shown in public

health measures. It is because of this apparent willingness to listen to, and accept, suggestions as to the sanitary conditions of the schools that I am led to speak frankly as to these conditions. The scholars are good, but not perfect. Their sanitary condition is good and growing better; it can be still further improved.

I have full faith that the combined efforts of educators and sanitarians will raise the standard of sanitary excellence in our already excellent school system; that public sentiment will demand that all the safeguards that science and experience can suggest be thrown about the lives of the school children; that the schools will not only not spread disease nor encourage physical defects, but will contribute materially to physical health and vigor.

First, then, the public schools should never be allowed to disseminate infectious disease. To this end, teachers should familiarize themselves with the most common and evident symptoms of these diseases, and should promptly exclude suspicious cases from school, until all doubt is passed as to the nature of their ailment.

Second, schoolroom regulations should prohibit spitting, and the common use of books and drinking cups, and should banish slates, slate pencils and sponges.

Third, the general health of all the scholars should be the care of the public schools, and physical examinations should have a place beside mental in the school curriculum. Especial attention should be given to eyesight and hearing.

Fourth, school children should be given regular physical instruction, and should be encouraged to have a good time, with thorough relaxation at recess.

Fifth, our school directors and the public should pay more attention to the school buildings, and should insist that all new construction should be in conformity with the latest knowledge of the subject. Old buildings that must still do duty should be improved, and especially as regards ventilation.

HEALTH is certainly more valuable than Money, because it is by Health that Money is procured; but thousands and millions are of small avail to alleviate the protracted tortures of Gout, to repair the Broken Organs of Sense, or resuscitate the powers of Digestion. Poverty is indeed an evil from which we naturally fly; but let us not run from one enemy to another, nor take shelter in the arms of Sickness.—*Johnson.*

GYMNASIUMS AND PLAYGROUNDS.*

By Mayor Quincy, of Boston.

The subjects of bathing and of indoor and outdoor exercise are so closely related to each other that they may well be considered together; they both fall within the same lines of municipal policy, both have a special relation to the children and young people of a community, and both have for their object the social elevation of the people through the promotion of cleanliness, physical development and reasonable recreation.

It is but a step from the open-air playground to the indoor gymnasium, and the same considerations which warrant the expediture of public money for the former justify it for the latter purpose. There is no stopping place, either legally or logically, between the open piece of ground for the children of a neighborhood to play upon in summer, and the indoor gymnasium for the same children to exercise in during the winter. It is equally impossible to draw any line between the maintenance of an outdoor bathing place in summer and an indoor bath in winter, or between a shower bath and tub bath, serving only the purpose of promoting cleanliness, and the swimming pool, which answers the further purpose of affording facilities for exercise and recreation.

The city of Boston has maintained during the present summer five beach baths, thirteen floating baths, two river baths and two swimming pools, which will have furnished before the end of the season between 2,000,000 and 3,000,000 free baths, at an expense for maintenance, including the furnishing of free bathing suits for children, of about $35,000. This summer work will be followed by the opening of a number of winter baths and swimming pools, and of at least two or three large public gymnasia.

On account of its combined advantages in promoting at once healthy physical development and wholesome recreation, the all-the-year-round swimming pool should, in my opinion, rank as one of the most important municipal agencies for the improvement of the condition of the people.

* Read at The Social Science Convention, Saratoga, Aug. 31, 1898.

The proposition of the first importance in connection with these subjects is that facilities of this nature should in a large city be furnished through a considerable number of establishments designed for local use, rather than concentrated on a larger scale at one, or very few, central points. Each local group of 20,000 or 25,000 people, divided upon lines which are carefully drawn in reference to social conditions and affiliations, should have its own local bathing establishment, gymnasium and playground. This figure is taken with reference to such a distribution of population as exists in most large cities; where the population is abnormally crowded it may, of course, be possible to make a single establishment serve the wants of a considerably larger number of persons.

The important thing is that the people of a given neighborhood should not have to go too far in order to avail themselves of such facilities. If the bath, gymnasium or playground is within half a mile to a mile of the home it will be readily and extensively used; if it is two or three miles away its use will be very greatly restricted.

The difference between the use of the park and the playground brings out this fact in a striking manner; the great park is, indeed, of much use and value, and is worth to the community all it costs, but it no more takes the place of the local playground than the university takes the place of the common school. Indeed, a comparatively small portion of the people of a city can use its parks except very rarely; a much larger proportion, if children are included, as they should be, use local playgrounds where these are afforded.

Without in the least deprecating the expenditures for great public parks, I have no hesitation in saying that we should do more to promote the social welfare of the people of great cities—which should certainly be considered by their municipal governments as an object of prime importance—if we expended far more money in providing and equipping local playgrounds, even if we were obliged to economize somewhat upon park expenditures in order to do so.

I am glad to be able to state that the importance of providing playgrounds has now been quite fully recognized by the city of Boston. Within the last three years the city has acquired parcels of land in different sections of the city for playground purposes, and has partially improved them, and by an act passed during the present year our park commissioners are authorized to spend not

exceeding $200,000 a year, and not over $500,000 in all, "for the purpose of establishing a comprehensive system of playgrounds, not exceeding 20 in number, to meet the wants of the different sections of the city." While there is no money available for use under this act during the current year, it will go into effect at the beginning of next year, and within the next two or three years Boston should be very fairly well provided with local playgrounds.

The importance of having the sites for playgrounds selected according to a well-considered and comprehensive plan, instead of being picked out at haphazard, can hardly be overestimated, and we are planning to provide for the needs of the future as well as the present by purchasing land in not yet fully built-up districts, while it can be bought at a comparatively low price.

Perhaps the strongest legal and moral ground upon which to place municipal expenditures for these purposes is that of their important connection with the education of the young. Very few Americans object to anything which falls within the scope of public education, though some object to expenditures for the promotion of the well-being of the adult population upon the ground that they are socialistic. While this objection is hardly to be treated very seriously in the present stage of our civilization, it is always better to move along the lines of least resistance, and therefore we may well bring baths, gymnasia and playgrounds within the limits of a well-rounded system of public education; for the time has gone by when the education of the young can be confined within the narrow limits of the schoolroom or to the acquisition of knowledge from books.

Cleanliness.

The things which affect the child outside of the school are, as a rule, more potent than the forces which operate only in the classroom. The healthy development of the body is of no less importance than the development of the mind; it is not too much to say, as by far the larger number of persons must earn their livelihood by some form of manual labor, that a sound body is of even greater practical importance to the average individual than a well-instructed mind. The relation of cleanliness not only to physical health, but to moral health as well, is too elementary to need dwelling upon.

If the city provides convenient bathing facilities for children, it can exact cleanliness of every pupil in its public schools, and can educate their receptive minds, however poor may be their homes, to the great importance of frequent baths.

The advance of civilization is largely measured by the victories of mankind over its greatest enemy—dirt; one of the chief and most fundamental differences, conditions between the savage and the civilized man, is that the former is dirty, while the latter is relatively clean, and the advance of medical knowledge constantly emphasizes the truth that by far the greater portion of all the disease which affects humanity can be traced back to uncleanliness of one sort or another.

Cleanliness of the body leads to self-respect and to an appreciation of the importance of cleanliness in the household; and when physical dirt has been banished a long step has been taken toward the elimination of moral dirt. If, therefore, we take any reasonable and comprehensive view of what the education of the young consists of, we shall insist upon the provision by the municipality, as a part of it, of facilities for cleanliness and exercise.

The swimming pool seems to me to possess important advantages over any other form of bathing, particularly for the young. When we make something which is useful, also interesting and attractive, we accomplish a great deal. The child who has to be driven into the bathtub or under the shower goes voluntarily and eagerly to the swimming pool. When these are provided by the city, every child can readily be required, as a part of the course of public instruction, to learn how to swim. The number who will be saved from drowning by such knowledge may, perhaps, be very small, but the number who will be permanently benefited by becoming accustomed to this most admirable form of exercise, with the bodily cleanliness which is also necessarily incidental to it, will be legion. This does not rest upon theory, but upon demonstrable fact; the mere offer of free instruction in swimming at our summer baths in Boston has resulted in between 3,000 and 4,000 school children who did not know how to swim presenting themselves for such instruction during the present summer and learning the art.

I do not hesitate to say that, if Boston had six or eight indoor swimming pools for her 525,000 people—and we shall certainly have half this number in operation during the coming winter—there would be no great difficulty in seeing that every one of her 85,000 school children learned to swim. No student of social science will fail to recognize the important consequences which would follow from the successful accomplishment of such an undertaking, particularly if it were accompanied by a great increase

in the number of indoor gymnasia for use in winter and of outdoor playgrounds for exercise in summer.

Nor need the expense of building and maintaining swimming pools and gymnasia deter any city from establishing them. Land, of course, is expensive in some places; but we have found in Boston that an excellent concrete swimming pool, 80 feet in length by 30 feet in width, and four to six feet in depth, capable of accommodating between 100 and 200 bathers at a time, can be built, exclusive of the building to inclose it, for about $2,500. Outside of the cost of land, a two-story building, with swimming pool, shower baths and gymnasium, sufficient in size for an average city ward, can be built, if necessary, at as low a cost as $25,000, and can be well administered for a few thousand dollars a year. If this be compared with other municipal expenditures, many of them for purposes of far less consequence, it surely cannot be said that the expense is prohibitory.

Boston now has two such swimming pools in operation, and in spite of the counter attractions of the salt water baths, each of them has been used during the summer season by an average of over 1,000 bathers a day, a large majority of whom have been school children. Our experience has demonstrated in a striking manner the local use of such facilities from the fact that, although the swimming pool last built was about a mile away from the first one, the attendance of the latter did not appreciably fall off, and the new pool created at once its own local patronage.

We may well, therefore, regard the local bath, gymnasium or playground as a part of the system of public instruction for the young, treating the use of such facilities by adults as incidental, and not as the primary object for which they are established.

Recreation.

I have emphasized the argument of mere utility, but we must not lose sight of the advantages of such municipal policy from the standpoint of recreation. Both the child and the adult must recreate his forces and faculties by a change from work to some form of amusement, if he is to do his best work. We are only beginning in this country to recognize the vital importance of wholesome recreation as a factor in social development, and the propriety of furnishing to all, at the public expense, some facilities in this direction; for a large portion of the people must practically be without them unless they are so supplied.

The new policy which the city of Boston is adopting in creating a department of public music, and in arranging not only for an extension of the public band concerts which have been given in summer, but for free concerts indoors during the winter, affords a striking example of public action for improving social conditions in this direction, and while the swimming pool and the gymnasium are not intended purely for amusement, the recreation which they provide is by no means to be overlooked. The work of providing facilities for their children to play in a manner which shall be safe and free from opportunities of mischief is no easy one for parents; the social importance of a municipal agency which supplies to the children of the community a frequent occupation, under proper supervision, is by no means small or simple.

The great problem of social science is that of securing some general distribution among all the people of the advantages and facilities which the progress of human knowledge and the advance of civilization have developed in such rich measure. A sound society must be well developed throughout its membership; in my opinion, one of the most important functions of municipal government is that of promoting the feeling of community, to secure in some measure the enjoyment by all, not, indeed, of an impossible equality of social opportunity, but of a certain minimum of elementary social advantages.

It is not within the power of that concentration of forces for cooperative purposes which we designate as a municipality to make all of its citizens well educated and prosperous; but I believe that it can readily secure them sufficient facilities for cleanliness, for exercise and for recreation, to raise materially the average social standard of the community, and to promote in some measure the general well-being and contentment. No one acquainted with the rudiments of social science will, I think, question the advantages of including such objects within the scope of municipal government, and within the purposes for which it is maintained.

The bath, gymnasium and playground are no unimportant agencies in promoting the civilization of great cities—a civilization which even now includes too much of barbarism, of squalor, of utter ignorance, for us to contemplate it with equanimity. These agencies are, to be sure, of the simplest description, but the simple is often the least obvious and the most easily overlooked.

Soap and water are, after all, the most potent agencies of civilization. Let us, then, see to their more universal application. It is doubtless true that the great mass of the unwashed will not lead in the movement for the general establishment of public baths; but they will surely follow in the movement if some of those who are already washed will lead in it, and they, and more particularly their children, will flock to the baths as soon as they are opened.

If social reforms must generally be started by those who are so well situated that they will not themselves be directly benefited, let us appeal to some of those who have fine bathrooms in their own homes, and who are able to move to the seashore in summer, with whom personal cleanliness is the most grateful of friends, to contribute something of their means and of their efforts toward a crusade for the cleanliness of the whole community, through the provision of public baths for all.

FORMALDEHYDE AS A DISINFECTANT.

The conclusions reached as the result of an investigation by Park and Guerard in the Bacteriological Laboratory of the Department of Health of the City of New York are summarized as follows:

Dwellings may be superficially disinfected by means of formaldehyde-gas, all apertures being tightly closed, when employed in the proportion of not less than 1% by volume strength, the time of exposure to be not less than 2 hours, and the temperature of the apartment not below 52° F. Under these conditions the common non-sporebearing pathogenic bacteria are surely and quickly destroyed when freely exposed to the action of the gas. Sporebearing bacteria, such as anthrax-bacilli, are not thus destroyed; they require at least twice the volume of gas at the same temperature for their destruction. But these are of such rare occurrence, that in house-disinfection they may practically be disregarded, and if present, special measures can be taken to destroy them. The penetrative power of formaldehyde-gas at ordinary room-temperature, even when used in double the strength necessary for surface-disinfection, is extremely limited. Articles, therefore, such as bedding, carpets, upholstery, clothing, and the like, should be subjected to steam, hot-air, or formaldehyde-disinfection in special apparatus constructed for the purpose. Bedding, carpets, clothing, etc., may be disinfected by means of formaldehyde-gas in the

ordinary steam disinfecting chamber, the latter to be provided with a heating and vacuum apparatus and special apparatus for generating and applying the gas. The gas should be used in the proportion of not less than 10% by volume strength, the time of exposure to be not less than 3 hours, and the temperature of the chamber not below 110° F. In order to insure complete sterilization of the articles, they should be so placed as to allow of a free circulation of the gas around them; that is, in the case of bedding, clothing, etc., these should either be spread out on perforated wire shelves or loosely suspended in the chamber. The aid of a partial vacuum greatly facilitates the operation. Upholstered furniture, and other articles requiring much space, should be placed in a large chamber; or, better, a room can be heated to the required temperature. The most delicate colors and fabrics, furs, leather, and other articles that are injured by steam, hot-air at 230° F., or other disinfectants, are unaffected by formaldehyde. Books may be satisfactorily disinfected by means of formaldehyde-gas in the ordinary steam-chamber as described, and under the same condition of volume of gas, temperature, and time of exposure. The books should be arranged to stand as widely open as possible upon perforated wire shelves set about 1 or 1½ feet apart in the chamber. A chamber having a capacity of from 200 to 250 cubic feet would thus afford accommodation for about 60 books at a time. Books cannot be satisfactorily disinfected by formaldehyde-gas in houses or libraries, or anywhere, except in special apparatus constructed for the purpose, because the conditions required for their disinfection cannot thus be complied with. The bindings, illustrations and print of books are in no way affected by the action of formaldehyde-gas.

Formaldehyde-gas is superior to sulphur dioxide as a disfectant for dwellings, because (1) it is more efficient and rapid in its action; (2) it is less injurious in its effects on household goods; (3) it is less toxic to the higher forms of animal life; (4) when supplied from a generator placed outside of the room and watched by an attendant, there is less danger of fire. Apart from the cost of the apparatus and the greater time involved, formaldehyde-gas, generated from commercial formalin, is not more expensive than sulphur dioxide, viz., 7 or 8 cents per 1,000 cubic feet being the cost of the disinfectant in either case. Formaldehyde-gas is the best disinfectant at present known for the disinfection of infected dwellings. It is inferior in penetrative power to steam and dry heat at 230° F.; but for the disinfection of fine wearing apparel, furs, leather, upholstery, books and the like, which are injured by great heat, it is better adapted than any other disinfectant.

To which may be added that the most approved steam and formaldehyde-gas disinfecting apparatus may be obtained from the Sanitary Construction Company, 56-58 Pine Street, New York, and Shering & Glatz, 58 Maiden Lane, New York.

CONSUMPTION: AN INDOOR DISEASE.*

By S. W. Abbott, M. D., Boston, Mass.

"How the people live is one of the most important questions that can be considered; and how—of what causes, and at what ages—they die is scarcely of less account, for it is the complement of the primary question, teaching men how to live a longer, healthier and happier life."

These words were written nearly a half century ago by one of the foremost medical men of his day, Dr. William Farr, and have lost none of their meaning as applied to our own times.

A careful study of the different classes and species of infections reveals their true character as widely diverse, as much so in fact as the different classes of plants which make up the flora of a country, or the different forms of animal life which constitute its fauna. The active agents of infection appear to be only lower forms of life. The infections of animals, the infections of plants, the infections of mankind, have their natural habitats or soils for growth, and are also capable, in many instances, of culture or growth upon other soils.

There is much let to be learned in regard to the habits, or life of the different infections, much that will aid us in the future in successfully combating them.

No form of infection has been studied with greater interest, during the past quarter of a century, than that of tuberculosis. Prominent among the characteristics of this disease, which have been shown by years of observation, by experiment and careful study, are the following:

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* Read at the meeting of the American Public Health Association, Philadelphia, October, 1897. From *The Journal*.

1. *Within the body.*
   - (*a*) A slow and indefinite period of incubation.
   - (*b*) In the majority of cases it appears as a disease of the lungs.
   - (*c*) Selection of the youthful or early adult period of life; (15-30 years).
   - (*d*) It exists as a disease of certain other mammals as well as of man.
   - (*e*) Mode of entrance into the body:
     - (1.) by the lungs;
     - (2.) by the alimentary canal;
     - (3.) by innoculation through the skin;

     in the foregoing order of frequency.

2. *Outside the body.*

   The infection leaves the body mainly in sputum coughed up from the lungs, but may occur in secretions or excretions from other diseased organs.

   The infectious sputum is mainly that of the lungs and not that which is simply discharged from the mouth as saliva; nor does it usually exist in vomitus.

   The tuberculous sputum especially dangerous is dry.

   The tuberculous sputum of enclosed air-spaces constitutes a far greater danger than that which remains out-of-doors.

The foregoing conditions may be considered as mainly accounting for the fact that consumption bears the characteristics of an indoor infection. It may be stated, however, almost as an axiom that this characteristic also applies to nearly all the infectious diseases in a measure, but in a more limited sense to whooping-cough, and still more to influenza. Given a definite number of healthy persons, say 1,000, having identical conditions as to age, sex and race, and let them be divided equally, five hundred to lead an indoor life, and the other half an outdoor life (for example, like fishermen); let an equal quantity of infectious material, e. g., that of diphtheria, scarlet fever, or dried tuberculous sputum, be distributed equally among the two groups, and it may be laid down almost as an axiom, that the indoor group will become infected in far greater numbers than the outdoor group.

The reasons are plain. The persons composing the indoor group are aggregated more closely together, and the air supply is limited in proportion to the efficiency of the ventilation, and these two conditions, the density of aggregation (as shown by Dr. Farr's early reports) and the limitation of the air supply, or, in other words, the ventilation, favor the spread of infection.

The preservation of the vitality of infectious material is also secured by the protection afforded by enclosed areas, either in rooms, workshops, railway cars, staterooms, cabins, or other enclosed spaces. Hence the usefulness of measures adopted by boards of health, in the shape of ordinances forbidding the practice of spitting upon the floors of such places.

On the other hand, the outdoor group is subjected to similar influences only in an infinitesimal degree. Ventilation is not needed, since the outdoor air affords the necessary protection by its enormous diluting powers. The density of aggregation is greatly diminished and disease germs lose their vitality under the destructive influences of the wind, the sun, and the rain. The chief danger here arises from the conveyance of such material indoors upon boots, shoes, and dress skirts. (See Cornet's experiments, and those of W. Kruse,[1] in Koch's Zeitschrift f. Hygiene; V. 191 and XIX, p. 313.)

Two persons standing or working at a distance from each other of five or ten feet are far more liable to transmit and to receive infection from each other when indoors than in the outdoor air.

In consequence of the peculiar methods under which tuberculosis is spread from one person to another, from the sick to the well, it is, therefore, desirable that the most careful attention should be bestowed upon the condition of those persons who are compelled either to live or to work indoors, and that a due measure of the work of boards of health with reference to the restriction of the spread of this disease should be expended in this direction. The danger from the consumption of milk and meat of tuberculosis animals has been investigated, and thus far, while the danger to be feared from this cause may be said to have passed from the region of possibility to that of probability, that which may be feared from the diffusion of sputum in enclosed areas or spaces may be said to amount to a certainty.

[1] Uber die hygienische Bedeutung des Lichtes.

Very much of the investigations now being conducted in other countries in regard to industrial hygiene depends upon this principle of indoor infection. Unfortunately very little has yet been done in this direction in America. (The few papers in the Transactions of this Association, especially the prize essay of Mr. Ireland, should be supplemented by some active operations upon our part as an organized association working for the public welfare and having the good of all classes in view.)

The conditions to which I have alluded being known and recognized, we are prepared for the statement of Cornet that open-air infection from tuberculosis may practically be disregarded, since no positive evidence has ever been presented to the effect that human beings ever contract tuberculosis in the open air. The results of observation and experiment both tend to show that the far greater danger lies in the direction of indoor infection.

Unfortunately, when the term "infectious" or "contagious" is applied to a disease, there is no discrimination in the minds of the laity, and such disease is at once classed with small-pox, measles, and scarlet fever; but, infection has its limitations and degrees, and those of tubercular infection are well defined and are bounded by narrow limits. Dr. Russell, in his excellent pamphlet on the "Prevention of Tuberculosis," quotes the following statement of the "French League for the Prevention of Pulmonary Phthisis":

"We know further that the consumptive is not in the least dangerous by contact or proximity, that it is neither his body nor his breath which is hurtful, and that we can chat with him for hours, live with him for years, and even sleep in his room and give him the most constant care, without running any serious risk, *provided we take certain precautions,* the chief of which is to collect his expectorations, and not to delay the destruction of his spittle until it becomes dry, and is disseminated as dust into the atmosphere."

And very wisely adds,

"This position is logical and unassailable. If you accept the doctrine as sound, the practice must be conceded as sufficient. Let there be spittoons handy for everybody; don't put your spit in the way of drying and becoming dust; don't anywhere stir up dust in enclosed places. The remedy is so commonplace that after reading all that has been written and spoken, and proclaimed

and enjoined, when we look at our notes and find nothing but sputum, spittoons, and dust, we are apt to show a little temper, like Naaman, when he expected the prophet to hold a solemn function over his leprosy, and he merely told him to go and wash himself. No doubt, the very simplicity of the prescription will constitute the greatest difficulty in the way of its acceptance and observance. * * * Only a clear apprehension of, and firm belief in, the doctrine that practically consumption is communicable through dried expectoration, and nothing else, will save the practice from ridicule."

To say, then, that consumption is not infectious, is to contradict the highest authorities, who appear to have settled this question both by experiments upon the lower animals and by observation, both with reference to men and the lower animals.

I shall now call your attention to some of the proofs of the proposition which forms the title of this paper, that consumption is an indoor disease.

1. First, the evidence shown by occupations.

2. That which is presented by the conditions of age and sex.

1. As to the evidence presented by observations upon the mortality in different occupations.

The best information upon this point is that which has been presented by Dr. W. Ogle, Chief Medical Officer in charge of the English Registration returns.

In a paper upon the mortality in different occupations presented at the International Congress of Hygiene in 1891, Dr. Ogle presented the following figures and statement concerning them so far as consumption is concerned:

"Workers in confined space and in foul or overheated air."

"The difference between an outdoor life in fresh country air and an indoor life in a town is readily shown by comparing the mortality of farmers, gardeners, and fishermen with that of shopkeepers; or going a step further in the scale of vitiated air, with that of tailors, printers, book-binders, and hatters, all of whom habitually work in overheated and underventilated rooms."

In this table the author confines the figures to phthisis and diseases of the organs of respiration, although the danger is not limited entirely to these organs. Fishermen appear at the top of the list with the lowest mortality from phthisis and diseases of the respiratory organs.

TABLE.

Comparative Mortality from Phthisis and Lung Diseases of Men (45-65 years of age), Working in Pure and in Vitiated Air.

Air.	Occupation.	Phthisis.	Diseases of Respiratory Organs.	Phthisis and Diseases of Respiratory Organs.
Pure.....	Fishermen.	55	45	100
	Farmers.	52	50	102
	Gardeners.	61	56	117
	Agricultural laborers.	62	79	141
Confined Air...	Grocers.	84	59	143
	Drapers.	152	65	217
Highly Vitiated Air.....	Tailors.	144	94	238
	Printers.	233	84	317

In the foregoing table, Dr. Ogle has presented a few occupations as illustrations of his proposition, to show the difference between the mortality of persons of different occupations working in pure and in vitiated air, or what practically amounts to the same, outdoor air and indoor air.

In order to present the results of observation as clearly as possible, the usual figures representing the death-rates of the living population at certain ages and of certain occupations are reduced to a standard of one hundred for that occupation which presents the lowest mortality from phthisis and diseases of the respiratory organs, and that is the occupation of the fishermen—a typical out-of-door mode of life. Next in order come farmers, gardeners, and agricultural laborers; and then a group of indoor occupations in which the indoor space is not seriously limited; and, finally, a group of occupations in which persons work in small and poorly ventilated spaces. That the careless distribution of sputum upon the floors of workshops has had much influence upon the phthisis mortality of such workmen is shown by careful observation. (See statement by Dr. Marfan in Rev. d'Hygiene, vol. 12, page 66, 1890.)

Added to the harmful effect of overcrowding in small apartments and workshops, and of inadequate ventilation, is the presence of the dust arising from the methods of conducting certain

occupations, and especially of such forms of dust as are sharp and irritating. That such occupations are especially attended by high phthisis mortality is abundantly shown by further tables presented by Dr. Ogle in the paper already alluded to, as well as by other observers.*

2. The proofs afforded by the records of mortality by sex and age-periods.

Accurate records of occupation mortality extending over long periods of time are not to be had in this country, but there are some quite good statistics of age and sex for different diseases, and there are certain peculiarities of these figures to which I desire to call your attention. The figures which I have selected for examination are those of my own State (Massachusetts) for the nine years, 1887-'95. They comprise over 50,000 deaths registered as from pulmonary phthisis in this period, and may be considered as fairly accurate.

TABLE.

Deaths and death-rates from phthisis at different ages. Massachusetts, 9 years, 1887-'95.

Age Period,	Death from Phthisis. Males.	Females.	Death-rates per 10,000 living of each age and sex. Males.	Females.	Deaths of females to each 100 males in equal numbers living.
0 - 2	868	806	26.8	25.2	93
2 - 3	129	127	6.1	6.1	100
3 - 5	118	150	3.0	3.9	130
5 - 10	197	266	2.2	3.0	136
10 - 15	248	737	2.8	8.6	301
15 - 20	1,804	2,969	19.3	29.8	154
20 - 30	7,067	8,701	35.4	39.7	112
30 - 40	5,466	5,611	36.1	35.9	99
40 - 50	3,363	3,143	30.4	26.8	88
50 - 60	2,333	1,757	30.9	20.7	67
60 - 70	1,512	1,295	31.4	23.7	76
All over 70	915	1,001	31.3	26.9	86
	24,020	26,563	24.5	25.6	105

* See also the recent monograph of Dr. Sommerfield entitled Die Schwindsucht der Arbiter, Berlin, 1895.

An examination of this table reveals some remarkable facts upon careful analysis. It will be noticed that the age-periods are presented in a peculiar manner. First, the first years of life (0-2) are presented as one two-year group; secondly, the third year is presented by itself; then come the fourth and fifth years in another two-year group; then the usual five-year groups from five years up to twenty; and then the remainder of life in ten-year groups.

The object in presenting the figures in this manner is to show that at the third year of life the death-rate of boys and girls from phthisis is equal.

In the first two years of life, the phthisis death-rate of boys is slightly higher than that of girls of the same age, the ratio being ninety-three deaths of girls to one hundred deaths of boys.

In the third year of life, the phthisis death-rate has become equal in the two sexes (one hundred females to one hundred males in equal numbers living). In the next two years, the female death-rate from phthisis has passed that of males and then is equivalent to one hundred and thirty deaths of females to one hundred of males in equal numbers living. At the period of childhood (5-10 years) the increase of the female over the male death-rate has continued and equals one hundred and thirty-six females to one hundred males. In the next period (10-15) it has reached the very great difference of three hundred and one females to one hundred males. (In the period, 15-20 years, the female death-rate bears the relation to the male of 154 to 100; and in the next period [20-30] it is as 112 to 100. This rapid decline in the female death-rate continues from a death-rate of 39.7 per 10,000 living females, in the period 20-30 years, down to that of 20.7 per 10,000 in the period, 50-60 years, at which period it bears the relation to the male death-rate of 67 females to 100 males.)

The male death-rate which has reached a climax of 36.1 per 10,000 in the age period, 30-40 years, declined to 30.4 in the next period and remained nearly constant from that time throughout the remainder of life.

The points in this table to which I desire to call attention are the following:

In the first two years of life, the death-rate of boys from phthisis is slightly greater than that of girls; but in the third year of life the death-rate is equal. In the fourth year the dif-

ference in the phthisis death-rate of the sexes is reversed and that of girls is the greater, and for the two years, three to five, this excess among girls amounts to 30 per cent. In the five-year period (5-10 years) this excess has increased slightly, to 36 per cent.; but in the next period (10-15 years) it suddenly makes a bound and rises to triple the male death-rate. So far as can be learned, the greatest relative difference in the death-rate of the sexes occurs between the twelfth and thirteenth years of life. The phthisis death-rate of each sex then increases rapidly to its maximum in males in the age-period (30-40) and in females in the period (20-30). The highest death-rate of males probably occurs at a little over thirty years, and that of females at a little less than thirty years.

A careful examination of English figures for phthisis reveals a general coincidence in almost every particular except that the difference in the death-rates of the sexes at early ages is not so great as in the Massachusetts figures, the female rate at ages 10-15 amounting to double that of the male instead of treble. Again the period at which the female death-rate begins to exceed that of the male is not until the fifth year of life instead of the fourth as in Massachusetts. What is the true explanation of these differences in the death-rates of the sexes from phthisis? I shall only offer a hypothetical explanation.

The lessened death-rate of females, as compared with males in the later age-periods (40 years and onward), may be explained (provided the doctrine of immunity or that of insusceptibility applies to phthisis) upon the supposition that the majority of susceptible females have been removed from the population by death in the early age-periods, leaving an excess of susceptible males. But this does not explain the excess of the female death-rate from phthisis in the early ages, after the second year of life. I venture, therefore, to offer the following:

Upon the theory that the infection of tuberculosis is mainly an indoor infection. At birth and from that time, throughout the first three years of life, the death-rate of the sexes from phthisis is very nearly equal. During these three years the relative amount of time spent within doors is about the same for both sexes, but in the fourth year of life, on an average, boys begin to spend more time out of doors than girls, and the relative amount of difference in time so spent continues to increase from that time onward. It cannot be urged that the period of puberty in girls has an effect

in causing this difference, since the difference begins at a much earlier time of life and reaches its climax before that age in females. The delay in the onset of this increase in females in England and the lessened difference at the age of 10-15 years may, perhaps, be accounted for by climatic differences, i. e., a generally milder climate in the British islands.

A singular instance of the hold which popular fallacy in regard to infection gains upon the laity is presented in the results of a legislative inquiry which occurred in Massachusetts last winter, but which, fortunately, proved a failure.

Once let the idea of infection gain a foothold in the popular mind, and the belief spreads rapidly and often to such an extent as to cause harm instead of good. The method and degree of infection are all of no account, so long as these words, "infectious or contagious," have become impressed upon the mind of the community.

Two private charitable institutions for the treatment of consumptives had been established in Boston, one of them having existed for thirty years and the other for a shorter period. Multitudes of consumptives had found a refuge within their walls, and physicians generally had considered it an advantage that such homes had been provided by the worthy action of benevolent and charitable people, where consumptive patients might secure a home and be rescued from the crowded and ill-ventilated tenements where they constituted a danger to other inmates inhabiting the same rooms with themselves.

The particular mode of therapeutic treatment employed at these institutions was of little moment, so long as they furnished a home for persons enfeebled by chronic disease whose lives, in the majority of instances, must necessarily come to an end in these institutions.

Many such establishments have existed in England for a long period, and to a considerable extent upon the continent of Europe. A recent official circular of the Imperial Board of Health of Germany commends their establishment in the highest terms, since in a certain ratio of cases a prospect of recovery is afforded to the workingman, who otherwise would have soon died of disease in his crowded tenement quarters.

All at once an attack was made upon these two charitable institutions, and the question of their suppression was carried to the government, an order being introduced which would have

practically put an end to their existence had it not been for the fortunate interposition of the mayor's veto.

In the following winter the same question was presented to the state legislature in the form of a bill which was plainly intended to secure the same result—the removal or the destruction of these charitable institutions. The bill was so drawn as to include all private hospitals, homes, or asylums which were intended for the treatment of certain specified infectious diseases. It was provided that such establishments should only be licensed upon the unanimous vote of the aldermen and board of health. A single opposing member could thus secure their removal. The penalty was "two years' imprisonment."

It is only necessary to say that the severity of such a bill wrought its own defeat. Evidence in its support was introduced to show that inmates from these institutions sometimes came out and spat upon the lawns or upon the neighboring streets. In one case, an inmate had entered a provision shop and spat upon the floor. In one instance, a man was attacked with hemoptysis in the street. The matter of visiting neighboring shops or houses is decidedly objectionable, but can be controlled by proper regulations.

The principal evidence of an expert character introduced by the petitioners was of a very general nature, and had reference to the infectious nature of tuberculosis, but very little testimony was given as to the methods of infection and to the degree of actual danger from such infection.

On the other hand, it was shown by evidence ably offered by the medical profession that the ward in which these hospitals were located was one of twenty-five wards in the city, and that its death-rate from consumption was much lower than the average of the city at large, as shown by Dr. Billings's volume upon the "Vital Statistics of Boston and Philadelphia in the U. S. Census of 1890."

It was shown that this investigation was the only one ever instituted for the purpose for which it was intended, except one which occurred in Germany, and in which similar results were reached. The prevalence of phthisis in the neighborhood of the hospital had been lessened since the date of its establishment.

With reference to the hospitals in Boston, it was shown that while a few consumptives, not more than a dozen in all at any one time, might have been out of doors upon the grounds in the immediate neighborhood, in all probability not less than several thousand were accustomed to walk daily upon the streets of the city without let or hindrance.

It was also shown that hospitals of the same character have existed in considerable numbers in England; four of them in London in densely settled quarters of the city, and the idea of limiting their usefulness by removal on account of apparent danger to the neighboring population has never arisen in any case.

Several years ago, the Local Government Board of England made a thorough investigation upon the use and influence of hospitals for infectious diseases, and issued a valuable report upon the subject. But no reference to tuberculosis appears anywhere in this report. The question does not appear to have arisen at all in the minds of the board.

The diseases referred to in that report are, chiefly, *scarlet-fever, diphtheria,* and *small-pox;* and the only disease treated in hospitals which the board believed might have any effect upon the surrounding neighborhood was small-pox. If, then, this is true of scarlet-fever and of diphtheria, that no danger need be feared, how much more is it true of a still more limited infection like that of tuberculosis?

Dr. J. S. Billings, in a recent discussion upon the value of infectious disease hospitals, said:

"It is, above all things, desirable to get the public to understand that there is very little danger in a hospital for diphtheria, scarlet-fever, or measles, separated the width of an ordinary street, even, from the surrounding houses. If there were a hospital of that kind next door to my house, separated by a brick partition wall, I should not have the least fear of anything coming through it, or of any contagion coming from it.'

Dr. Netter, in a report to the consulting committee of hygiene of France upon the subject of asylums for consumptives, says. "A well-managed sanitorium offers no danger to the neighborhood."*

Cornet's experiments upon the dust of hospitals, asylums, rooms of consumptive patients, and of the streets of Berlin, showed that while dust from the floors of enclosed apartments occupied by consumptives reproduced tuberculosis when inoculated into lower animals, that which was collected from the streets of a populous city produced no such effect.

A noted physician,† in alluding to the movement to which I have

* Receuil des Travaux des Comite Consultatif d'Hygiene Publique, Paris. Vol. 25, p. 67, 1896.

† Dr. F. C. Shattuck, in an address before the Rhode Island Medical Society, June 3, 1897. Boston Med. and Surg. Journal, June 24, 1897. p. 614.

referred, characterized it as "monstrous," and said, "I rejoice to say that the bill failed to pass. * * * As far as danger of infection goes, I should have no anxiety for my family or myself were a properly-managed consumptive hospital next door to me, though I might not consider its presence as indicative that real estate in my neighborhood was rising in value."

The underlying principle which could have any possible weight in this investigation was the possible danger of the spread of tuberculosis infection from a hospital inhabited by consumptives to the surrounding neighborhood, or from its inmates while walking about the grounds or the neighboring streets; or, in other words, the danger of outdoor infection. Since such danger was neither proven, nor was even a strong probability thereof shown to exist, the proposed measure utterly failed.

Modern medicine has received no greater impetus than that which has been derived from the rapid advances afforded by bacteriological research. So great and so valuable have these results proved, that the death-rate from some of the worst forms of infection has begun to lessen with greater rapidity than before, under the influence of methods which had their origin in the laboratory of the scientist.

Notwithstanding this fact, however, it cannot be denied that the most reliable conclusions in regard to the true characteristics of infectious diseases must be derived, not only from the laboratory but from the observations of the physician in his daily rounds of practice, together with a study of mankind in his relation to all outward circumstances, which influence his condition in life, such as those of sex, age, and occupation. In other words, the results of laboratory investigation, clinical observation, and the broad and general study of the natural history of disease, taken together, constitute a better means of deciding doubtful questions in regard to infection than either of these methods taken separately.

In conclusion, then, it must be admitted that tuberculosis is an infectious disease. Its character is too well defined, both by observation and by experiment, to admit a reasonable doubt. The active principle of infection, the bacillus of tuberculosis, is recognizable; it is capable of isolation from the body, of cultivation, and of inoculation into the lower animals. But, practically, the exact mode of infection, when applied to the daily intercourse of human beings, is extremely limited, and no evidence has ever been presented which tends to show that such infection ever occurs by

exposure in the open air, either by the breath of consumptives or by the distribution of sputum upon the surface of the soil. On the other hand, abundant evidence shows that such infection is of very common occurrence from indoor exposure to the distribution of sputum deposited upon floors and dried under favorable circumstances.

By this I do not mean to infer that the outdoor free distribution of the sputum of consumptives should be encouraged or allowed, but should be prevented on the general principle that all infectious material constitutes a greater or less danger, and not because any serious danger from such outdoor distribution has actually been shown to exist when compared with indoor distribution of sputum.

MISTAKES OF THE SMALL TOWNS.

By Harvey B. Bashore, M. D.

Agitation about drinking water has reached the small towns, and almost all are seeking for a new supply to supplant the old well.

Somehow or other people have gotten the idea that spring water, no matter where it comes from, is the thing to be desired, and if the spring has a source high enough to permit the use of the water by gravity without costly pumping works, it is considered an ideal supply. So a few of the prominent citizens of the town get together, buy land, lay pipes, and before long claim to have a pure mountain spring water—the best in the land.

Now the fact is that spring water, because it is spring water, is no better, not even as good, as some other waters; just this day I made a chlorine examination of a sample of croton water and a sample of spring water from some Pennsylvania hills, and the result was considerably in favor of croton water. A spring is even no better than a well, except that it is very often situated in an uncultivated upland; if it is in a town or surrounded by dwellings, it is often worse than a well on account of being so readily polluted by surface washings.

Another point worth remembering is that these towns, when they have procured a water supply presumably pure, expect it to

look out for itself, and here they make a fatal mistake; for to keep water pure which is in any way near human habitation needs human vigilance. There is a small town near Harrisburg, Pa., which recently tapped a fine spring in the Blue Mountains. Originally it was a pure supply, but the town which uses the water exercises no care over the gathering-grounds, and as a result cows from a neighboring pasture wallow in the spring. Of course this does not likely breed disease, but it demonstrates at least that this community is not getting as pure water as it imagines.

Then, again, another difficulty arises before long in these towns. Some of the richer citizens think they ought to have water closets and bathtubs, and soon a plumber is obtained. What to do with the sewage—for sewage it will be—never troubles the householder. He will run it into the sewer, as one once told me, forgetting that there are no sewers, or that sewers must have an outlet; but the wise plumber has been in such places before and helps him out of the difficulty by running the soil pipe into the old privy, and he tells him if the privy gets full he can have it emptied. In the majority of cases it never will get filled, for the simple reason that most of the water will leak into the surrounding soil.

This might not be so bad if only Jones or Smith had water-closets, but other citizens do the same, and following the example of the hardy inovators, turn their privies into cesspools. Now, as time passes, there are cesspools everywhere, and as they all leak, the ground water soon becomes poisoned.

Water pipes, too, always leak, and whenever the pressure from without becomes greater than that in the pipes—which it must frequently do—filthy soil water passes into the pipes, the town water supply becomes polluted, and eventually typhoid breaks out.

As time passes the town increases in size, while still retaining its primitive sanitary appliances; consequently we are treated to the sight of towns of six or ten thousand inhabitants using cesspools. Now and then the town becomes a great city, as in the case of Baltimore, which is all but a cesspool city, and we wonder why its typhoid death rate is almost 5 per 10,000.

Sooner or later all cesspool towns will travel the same road—all will end in an epidemic and then the cesspools will give place to sewers, but the damage will have been done, many lives lost and much sickness endured, all because we want to patch mediæval shiftlessness onto nineteenth century progress.

REORGANIZATION OF THE PUBLIC HEALTH SERVICE IN LOUISIANA.

ACT PASSED BY THE LEGISLATURE TO CARRY INTO EFFECT THE PROVISIONS OF THE NEW CONSTITUTION, AND APPROVED AUGUST 5, 1898.

Section 1. Be it enacted by the General Assembly of the State of Louisiana, That a State Board of Health for the State of Louisiana is hereby created and established, to consist of seven representative physicians from the various sections of the State, who shall be appointed by the Governor, by and with the advice of the Senate, as provided by Article 296 of the Constitution. They shall hold their offices for seven years from the date of their qualification, unless sooner removed for cause. The members first appointed shall be so designated that the term of two of the members shall expire in two years from the date of their qualification, and the term of two other members shall expire in four years from the date of their qualification, and the terms of the three others in six years. When reappointed, the members shall then serve for seven years. They shall qualify and be commissioned in the manner now provided by the Constitution and laws of the State of Louisiana for all other offices of the State. At any meeting of said board three members shall constitute a quorum to transact business. The board shall meet once in every three months on a day to be fixed by it, and as much oftener as the board may determine. Special and called meetings may be held as hereinafter provided in this act. Such members of the board as may not reside in the city in which the domicile of the board is established shall be entitled to and shall be allowed $10 per day for each day consumed in going to and coming from State meetings, and while in attendance thereon, and five cents per mileage for each and every mile traveled in going to and coming from said meetings, by the most direct route of transportation from the places of their respective residences to and from the place of meetings of the board, which aggregate amounts shall be paid by the secretary and treasurer of the board on the voucher of the member, approved by the president of the board, out of the funds of the board.

Officers of the Board.

Sec. 2. Be it further enacted, etc., That the Governor shall designate and appoint one of the members to be president of said board, who shall receive an annual salary of $5,000, and shall serve as such for four years from the date of his appointment, the said salary to be paid out of the funds, or appropriations, of said board. At its first meeting after the passage of this act, the board shall elect a suitable person, other than a member of the board, to be secretary and treasurer, who shall receive an annual salary of $2,500, to be paid out of the funds, or appropriations, of the board, and shall serve for four years from the date of his election. He shall be removable at the pleasure of the board. He shall give bond to the State of Louisiana for the faithful performance of his duty, in such sum and with such surety thereon as dent to like offices in similar corporations, and also such other powers and duties now devolved by law upon their predecessors in the present board, as well as those additionally prescribed by the provisions of this act. In addition to said powers and duties heretofore prescribed by existing laws, the president shall have the power, after the adjournment of the board, and during the interval of time between the meetings of the board, and when the board is not in session, to issue all orders and warrants, and to take all necessary steps to execute the sanitary law of the State, and to carry out the rules, ordinances and regulations of the board made thereunder, and he may in his discretion call special meetings of the board whenever in his opinion an emergency shall require it, provided, that in all cases where two or more members shall demand the same it shall be his duty to convene said special meetings.

Powers of the Board.

Sec. 3. Be it further enacted, etc., That said board shall have all the powers, authority and jurisdiction now possessed by the existing State Board of Health under present laws now in force, except in so far as modified and changed by the provisions of this act. It shall have exclusive jurisdiction, control and authority over maritime quarantine within the State, as now provided by existing laws of the State. It shall have supervisory power over land quarantine, and over the care and control of infectious and contagious diseases within the State in order to accomplish the subsidence and suppression thereof, and to prevent the spread of the same. Such supervision and control shall be exercised in the

manner and to the extent hereinafter laid down in this act. It shall prepare or cause to be prepared a sanitary code for the State of Louisiana, which shall contain and provide rules and regulations and ordinances of a general nature for the improvement and amelioration of the hygienic and sanitary condition of the State. On the adoption of said code by the board it shall be published at length and in full in at least one newspaper in the City of New Orleans, and in the official journal of the State capital, on ten successive and consecutive days, and shall also be printed and published in pamphlet form with such number of copies as may be necessary for the distribution for information of health bodies, health and sanitary officers and the public generally. When so printed said code shall cover and provide for, especially, land and maritime quarantine regulations; the reporting, care and management of cases of infectious and contagious diseases; it shall regulate the manner of keeping and reporting and tabulating vital and mortuary statistics; it shall provide for, affording facilities for vaccination, provided the same shall not be made compulsory, except in cases of children attending the public schools; it shall regulate the carriage and transportation of persons, freight and dead bodies brought into the State or transported through or in the State in so far as the same may affect the public health; it shall provide for the carrying out of the laws of the State in regard to the adulteration of articles intended for human food or consumption; it shall provide for the inspection of meats, milk, coal oil and other articles affecting the public health and safety, where and when the same may be brought into one parish from another, or from outside of the State, leaving to the local boards hereinafter provided the regulation of the sale or offering for sale of said articles within the parish or municipality to which the same may be brought; and said code shall contain general rules in regard to such health, sanitary and hygienic subjects as cannot, in the opinion of the State Board of Health, be efficiently and effectively regulated by the local boards. The board shall have power to appoint inspectors and other necessary officers and employes and fix the salaries thereof. All inspectors, officers and employes of the said board shall have power to arrest without warrant all persons violating the provisions of any rule or regulation of the said board, when such violation has occurred or is occurring within the sight, view or personal knowledge of said inspector, officer or employe, and in all cases where said

violation may not have occurred with the sight, view or personal knowledge of said inspector, officer or employe said functionary shall have only the right to arrest in execution of a warrant duly issued by the president of the board. It is hereby made the duty of all sheriffs, their deputies, constables and their deputies, police officers of towns and cities, and all other peace officers, to aid and assist in the arrest and apprehension of all persons violating the articles of any rule or regulation of the State Board of Health; to themselves arrest and apprehend all offenders committing the offence in their view or sight or within their personal knowledge. The members of the State Board of Health and every person duly authorized by them may without fear or hindrance enter, examine and inspect all grounds, erections, vehicles, structures, public buildings and places. The State Board shall at all times keep in readiness one or more medical inspectors and nurses, medicines, clothing, bedding, appliances, tents, and other necessary paraphernalia so as to repair to any locality in the State that applies to it for assistance upon the outbreak of an infectious or contagious disease with the view of stamping out the same. An annual appropriation of $5,000 shall be made to start this first help. The local authorities shall keep up the work at their own expense after it has been started.

Parish Boards.

Sec. 4. Be it further enacted, etc., That each and every parish in the State shall establish and organize parish boards of health in the manner following: The police jury in each parish shall, immediately after the promulgation of this act, or as soon thereafter as practicable, elect and appoint a suitable person from each ward of the parish not embraced in a duly incorporated municipality, such person not to be a member of the police jury, and at least three of the persons so appointed or elected shall constitute the Parish Board of Health, and shall serve for four years from the date of their qualification. Said parish board shall meet on the first Tuesday after the commissioning of its members. It shall elect a chairman, who shall be a registered and licensed physician, and the health officer of the parish, who shall serve in said capacity, exercise the powers and perform the duties usual and incident to such officers in similar organizations. His salary shall be fixed by the police jury and paid by the parish. The secretary of the police jury of the respective parishes shall be ex-officio secretary of the Parish Board of Health. The treasurer of the police jury

of the respective parishes shall be ex-officio treasurer of the Parish Board of Health.

Municipal Boards.

Sec. 5. Be it further enacted, etc., That the Council or legislative body of each and every incorporated municipal government in the State shall establish and organize a town or city board of health in the manner following:

The said Council or legislative body shall, immediately after the promulgation of this act, or as soon thereafter as may be practicable, elect or appoint five persons in said municipality to be members of the Municipal Board of Health. Such persons shall not be members of the said Council or occupy any other office in said municipality, and three of the persons so appointed or elected shall, if practicable, be duly registered and licensed physicians. Said persons when so appointed or elected shall constitute the city or town board of health, and shall serve for four years from the date of their qualification. For the cities of Shreveport and Baton Rouge, the Governor shall appoint, with the advice and consent of the Senate, three members on each of said city boards. The Council or legislative body shall provide ample means for the maintenance and operation of said board. Said town or city boards of health shall meet on the first Tuesday after the commissioning of its members on each of the said city boards. The Council or legislative body and licensed physician, who shall be health officer of the town or municipality, who shall serve in said capacity, exercise the powers and perform the duties usual and incident to such officers in similar organizations. The chairman shall receive such an annual salary as the Board of Health of said municipality may fix and pay. The said Board of Health shall have power to appoint a sanitary officer, whose duties shall be to enforce the requirements of said board in all matters of sanitation, and also to act as secretary. His salary shall be fixed and paid by the board.

Sec. 6. Be it further enacted, etc., That all members of parish and municipal boards shall have been at the time of their appointment or election five years residents and voters of the parish or municipality in which they are to act as said boards, and the membership shall be vacated on the removal therefrom of the member. No member of said board, with the exception of the chairman and sanitary officer, shall receive any pay or emoluments in any way for the services rendered as a member of the

board, and no member shall be in any way, directly or indirectly, interested in any contract for supplies to be furnished or services to be rendered to said board.

Powers of Municipal Boards.

Sec. 7. Be it further enacted, etc., That said parish and municipal boards of health shall have power and authority to pass health and sanitary ordinances for defining and abating nuisances dangerous to the public health; to regulate drainage and ventilation with reference to human habitation and places of business and public resort; to regulate the carrying on of trade and business injurious to public health; for the disposition of fecal matter and garbage; to regulate the erection of buildings with due regard to the filling of lots and the grading thereof, and the arrangement of said buildings; for the vacation of, demolishing of buildings for the protection of public health; for the registration of births, deaths and marriages, and the keeping of vital statistics to be registered and reported to the State Board of Health under its instructions and regulations, and generally all health and sanitary ordinances necessary and incident to the proper local sanitation of the parish, city or town in which they exercise their powers.

They shall act under the supervision and advice of the State Board of Health, and shall pass no ordinance in conflict or inconsistent with the powers and duties of the State Board of Health, but shall in all health and sanitary measures which they may adopt, be auxiliary to and act in harmony with the State Board of Health, and shall make reports monthly to said State Board of Health, and furnish such other information as the State Board of Health may require, the same to be embodied in the annual report of the State Board.

The object and purpose of this act being hereby declared to be to entrust full power and authority to such local boards to establish, control and administer all matters of strictly and purely local sanitation, not affecting other portions of the State.

For the City of New Orleans the State Board alone shall have power to establish quarantines. Local boards of health shall have power to establish quarantines with the co-operation of the councils of municipalities and the police juries. The State Board shall have supervisory power over all local quarantines so established.

All necessary expenses, costs and charges of local sanitation shall be borne by the parish, city or town, in which the local board

shall be established, and in case the fiscal authorities thereof shall refuse to budget for, appropriate or pay to the same, the local boards shall have right to the writ of mandamus before a court of competent jurisdiction to compel the proper action by said parish, city or town authority.

Infectious Disease to be Reported to State Board.

Sec. 8. Be it further enacted, etc., That in the event that any case shall be reported to or come to the knowledge of any local board, which is either deemed to be a case of contagious or infectious disease, or suspected of so being, the local board shall immediately isolate the same and communicate the fact by the most expeditious means at hand to the State Board of Health, together with the information as to what steps have been taken by the local board to isolate and care for the same, and shall, from time to time, communicate the progress of the case and disease to the State Board of Health. On receipt of such information by the said Board of Health, the president of said board shall, if he deem the emergency sufficient and necessary, send expert physicians to be selected by him to examine and diagnose the disease, and if on such examination and diagnosis the experts shall declare the case to be one of contagious or infectious nature, liable to spread, or to become dangerous to the general public health of the State, the State Board of Health or its president shall instruct the health officer of the Board of Health of the parish, city or town, as to what additional step, if any, shall be taken to isolate the case, and prevent the spread of the contagion or infection therefrom, and shall require that the local health officers shall immediately conform thereto, and put the same in operation. In the event that said local authorities shall fail or neglect to so act within a reasonable time, or in so acting shall fail to do so in a manner satisfactory to the State Board or its president, the State Board or its president shall take charge of the case and manage the same through its own officers or employes.

All expenses, costs and charges incurred in the management, control and supervision in such cases shall be borne and paid by the parish, town or city in which the case may be, and on the failure of the parish or municipality to reimburse the State Board the amount of its expenditures incurred in such cases the State Board of Health shall have the right to proceed by writ of mandamus in any court of competent jurisdiction to compel the payment of the same.

Quarantine to be Ordered by State Board.

In case that any parish, town or city, or any portion thereof, shall become infected with any contagious or infectious disease, to such an extent as to threaten the spread of such disease to the other portions of the State, the State Board of Health shall issue its proclamation declaring the facts and ordering it in quarantine, and shall order the local boards of health in other parishes, towns and cities, to quarantine against said locality, and shall establish and promulgate the rules and regulations, terms and conditions on which intercouse with said infected locality shall be permitted, and shall issue to the other local sanitary authorities instructions as to the measures adopted in quarantining against persons, goods, or other property coming from said infected localities, and these rules and regulations, terms and conditions shall be observed and obeyed by all other health authorities, provided that should any other of the non-infected portion of the State desire to add to the regulations and rules, terms and conditions already imposed by the State Board, they may do so, on approval of the State Board of Health. The State Board of Health may, in its discretion, prohibit the introduction into any infected portion of the State, persons acclim ed, unacclimated or said to be immune, when in its judgment the introduction of such persons would add to or increase the prevalence of the disease. The State Board of Health shall render to the local boards of health all the assistance in their power and which the condition of their finances will permit.

Sec. 9. Be it further enacted, etc., That all laws and parts of laws in conflict with, inconsistent with, or superseded by, the provisions of this act are hereby repealed, but all laws, or parts of laws, parish or city ordinances, State Board of Health ordinances, State, parish and municipal rules and regulations now existing and not in conflict with, or inconsistent with or superseded by the provisions of this act, are continued in full force and effect, and this act shall not be construed or interpreted so as to deprive the State Board of Health or local board of health of any powers or authorities they may have under existing laws, except in so far as these powers and authorities may be modified or changed by the provisions of this act, and then only to the extent of the modification or change. All those parts of the special Act No. 172 of 1874, and the special Act No. 110 of 1878, and the special Act No. 56 of 1896, and of all other special acts relating to boards of health in towns, cities or parishes, and of Act No. 92 of 1882, which

are in conflict with, inconsistent with, or superseded by, the provisions of this act are hereby repealed, and all other parts of said acts not in conflict with, inconsistent with, or superseded by, the provisions of this act are continued in full force and effect. The president and secretary of the State Board shall not be ex-officio members of the Board of Health for the City of New Orleans, and the president of the State Board shall not be the president of the local board of the City of New Orleans.

Revenues of New Orleans Board.

The municipal Board of Health of the City of New Orleans shall have the exclusive right to the collection of all fees and charges now being made by the present State Board of Health within the City of New Orleans, other than those accruing from the coal oil inspection and the registration of physicians, midwives and dentists. The municipal Board of Health of the City of New Orleans shall have the exclusive supervision or authority over the meat inspection service and sanitary regulations at the slaughtering pens or abattoir in the parish of St. Bernard, with regard to all meat intended for human consumption within the City of New Orleans.

Sec. 10. Be it further enacted, etc., That this act shall go into effect and be operative after its passage and promulgation. The presently existing State Board and local boards of health shall turn over to the new boards all the assets, property, records or other things and matters now in their charge and keeping, and thereafter the new boards shall be considered as successors in office to the old boards, and all rights, actions, claims or things of value possessed by the old boards shall become vested in the new boards, with full right and power to hold, prosecute and defend the same just as if no change had been made in said boards.

THE AMERICAN CLIMATOLOGICAL ASSOCIATION.

The fifteenth annual meeting of this association was held at Maplewood, White Mountains, Aug. 3-Sept. 1. On the opening day Dr. E. O. Otis, of Boston, President of the association, read a paper on "Avenbrugger and Laennec, the Discoverers of Auscultation and Percussion," followed by Dr. F. I. Knight, of Boston, on "Common Errors of General Practitioners in Dealing

with Cases of Pulmonary Tuberculosis;" Dr. Glentworth R. Butler, of Brooklyn, "Notes on the Position of the Lower Border of the Heart;" Dr. Judson Daland, of Philadelphia, "A Case of Dissecting Aneurism of the Thoracic Aorta Rupturing Into the Pericardial Sac and Causing Immediate Death;" Dr. R. G. Curtin, "The Influence of Respiration on the Action of the Heart in Health and Disease." A business meeting followed, and in the afternoon, by invitation of Dr. C. F. McGahan, the members drove to the Profile. On the second day papers were read by Dr. Beverly Robinson, of New York, "Clinical Notes on Asthma and its Treatment;" Dr. A. Jacobi, New York, "Ergot in Chronic Malaria;" Dr. E. L. Baldwin, of Saranac Lake, "Infection from the Hands in Phthisis;" Dr. Guy Hinsdale, of Philadelphia, "The Distribution of Pulmonary Tuberculosis in New Jersey;" Dr. J. E. Stubbert, Liberty, N. Y., "Some Statistics Upon Serotherapy in Tuberculosis;" Dr. Vincent Y. Bowditch, Boston, "A Suggestion: Results of Recent Clinical Experiences with Tuberculosis Patients;" Dr. F. H. Williams, Boston, "Clinical Uses of the X-ray in the Diagnosis of Pulmonary Tuberculosis and Other Affections of the Chest;" Dr. Charles E. Quimby, New York, "Definite Records of Physical Signs;" Dr. W. D. Robinson, "Climatology of Nudity." In the evening the annual banquet was held at the Maplewood Hotel, and the next day the association made the ascent of Mt. Washington.

The next meeting will be held in New York, during the second week in May. Officers were elected as follows: Dr. Beverly Robinson, New York, president; Richard P. Newton, M. D., Montclair, N. J., James A. Hart, M. D., Colorado Springs, vice-presidents; Guy Hinsdale, M. D., Philadelphia, secretary and treasurer; Isaac H. Pratt, M. D., Lakewood; S. E. Solly, M. D., Colorado Springs; James B. Walker, M. D., Philadelphia; E. F. Ingalls, M. D., Chicago; E. L. Otis, M. D., Boston, councilors; Frederick I. Knight, M. D., Boston, delegate to the Executive Council of the Congress of American Physicians and Surgeons; R. B. Curtis, M. D., of Philadelphia, alternate.

THE MEDALS, JETONS AND TOKENS ILLUSTRATIVE OF SANITATION.*

By Dr. H. R. Storer, Newport, R. I.

XI. *Naval and Military Hygiene.*

South America.

Venezuela.

2710. Obverse. The Geneva cross, raised, with perpendicular lines (heraldically denoting red) upon a similar cross. In centre, crossed laurel and palm branches, enclosing in monogram A V (Associacion Venezuela, the Red Cross Society of V). Reverse blank. Bronze. 24.24. 38.38mm. With ring, and with watered silk ribbon with the Geneva cross worked upon it in red. Storer, *loc. cit.*, July, 1896, No. 1007. In the possession of Surg. Gen. J. R. Tryon, U. S. N., to whom it was awarded for services at La Guayra, with the U. S. S. "Chicago" in 1892.

The United States.

Dr. Henry Salzer (-1896), of Baltimore.

2711. Obverse. A shipwreck. Inscription: N.D.L. (Nord Deutscher Lloyd) Steamer Baltimore. Exergue: Off | Hastings Reverse. Dem | Schiffsarzt | Heinrich Salzer | Fuer Seine Aufopferung | Waehrend Des Schiffsbruchs | In Der Nacht Vom | 22ten Zum 23ten Mai | 1872 | Vor Hastings England. Gold, bronze. 20.32mm. Storer, *loc. cit.*, April, 1896, No. 970. In the Government collection.

Dr. Joseph Warren (1741-1775), of Boston.

Besides Nos. 1252-3, and 2056, there is:

2712. Obverse. The death of Warren. Above: Bunker Hill Below: 17 June, 1775. Mitchell Ft. Reverse. The monument, with cannon, flags, etc., at base; an eagle hovering above. Inscription: Harrison Jubilee, Bunker Hill, Sept. 10, 1840. White metal. 27.43mm. Haseltine, Seventieth Cat. (Crosby collection), 27-29 June, 1883, No. 700; Storer, *loc. cit.*, Oct., 1892, No. 477.

* Continued from page 255.

About the existence of the following there is question. I give it, however, in the hope that a specimen may yet be found, though I do not number it.

Obverse. Upon a monument, at foot of which a weeping female with feathered girdle: Waren (*sic*) Wooster Montgomery Mercer Inscription: O Manes Heroum Vestra Libera Est Patria Reverse unknown. Crevecœur, Lettres d'un Cultivateur Américain, Paris, 1787, fig. on title page; Betts, *loc. cit.*, p. 304, No. 623; Am. Journal of Num., IV., p. 45; Storer, *Ibid.*, Oct., 1896, p. 46.

New Jersey.

2713. Obverse. A Greek cross of red enamel, upon a quadrilateral of chased bright gold. At centre, a shield of white, bordered by red enamel; upon this, a caduceus (emblem of Mercury, and not Æsculapius); on its border: Military Order | Of Surgeons | Of New Jersey Reverse blank. Above, suspended by loop, a plicated band of bright gold, with central shield of blue enamel, upon which the arms of New Jersey. Upon its border: Nova Cæsarea | Semper Paratus | Semper Fidelis With pin attachment. Gold (value $16). 28.43mm. Storer, *loc. cit.*, July, 1896, No. 1009. I have drawings from Dr. W. S. Disbrow, of Newark, N. J. The order was organized in 1890, by the medical officers of the N. J. National Guard.

2714. Obverse and reverse similar to preceding, but with slight variations, save: National Order of Military Surgeons. *Ibid.*, July, 1896, No. 1010. Communicated to me by Dr. Disbrow.

ENGLAND.

Besides the Appleton medal of the Royal Hospital School, Greenwich, there is a second.

2715. Obverse and reverse as in No. 1363, save within the beaded circle of the latter: The | W. P. White | Prize. Storer, *loc. cit.*, June, 1897. In the Disbrow collection.

I am now able to give a fuller description of the following:

Dr. Sir Gilbert Blane.

(2058.) Obverse. Head, to left. Beneath: Pistrucci. Inscription: Gilbert Blane Baronettvs Archiatrvs Aet LXXXI. Reverse. Britannia, erect, to left, with trident in right hand and left upon a medicinal plant on an altar. Around, the staff of Æsculapius, a coiled rope, and an anchor. In front, a sailor supporting a fallen comrade. Legend: Mente Manvqve. Gold, sil-

ver. 24.38mm. Weber, Numismatic Chronicle, July, 1894. p. 116, No. 191a; *Ibid.*, English Medals by Foreign Artists, p. 65; Storer, *loc. cit.*, April, 1893, No. 607, and October, 1894, p. 44; Tancred, Medals conferred on British Navy, Army and Auxiliary Forces, 1891, p. 404.

Sir Richard Wallace. See under France.

Miss Florence Nightingale (1820-), of London.

Besides No. 1293, there is the following:

2716. Obverse. Bust of a nurse (Florence Nightingale), to left. Legend: Non Ministrari Sed Ministrare Reverse. Within field: Nurses | Training | School Below, engraved, the date of year. Inscription: Hospital | University of Pennsylvania. 18.23mm. Storer, *loc. cit.*, October, 1893, No. 644.

2717. Obverse. A female assisting a wounded soldier. Reverse. A wreath. Inscription: Dedicated To The Pious Ladies Of Britannia In Commemoration Of Their Noble Devotion To The Cause Of The Sick And Wounded During The Franco-German And Spanish Wars 1870: 71: 73: 74. White metal. 33.51 mm. Van Peteghem, Medailles de 1870-71, No. 1035; Weber, *loc. cit.*, p. 96, No. 244; Storer, *loc. cit.*, June, 1897, No. 1094.

See also a similar medal, but French, No. 1396.

Besides the medals of the Order of St. John of Jerusalem, Nos. 1395 and 2059, there are the following:

2718. Obverse. An eight-pointed Maltese cross in white enamel, with alternate lions and unicorns in the angles. Silver. Suspended by a black watered silk ribbon. Tancred, *loc. cit.*, p. 16; Storer, *loc. cit.*, January, 1897, No. 1096. For the Honorary Associates of the Order.

2719. As preceding, but surmounted by an imperial crown. Gold. *Ibid.*, No. 1097. For H. R. H. the Grand Prior, and H. R. H. the Princess of Wales.

2720. Obverse. Upon raised centre, a Maltese cross. Inscription: Awarded By the Order Of St. John of Jerusalem In England (rosette) Reverse. A sprig of St. John's wort entwined with scrolls, upon which: Acre (scroll) | Jerusalem | Cyprus-Rhodes | Malta Inscription: For Service In The Cause Of Humanity (rosette) Upon rim: Edward Charles Thompson 1885. Silver. 24.37mm. Tancred, *loc. cit.*, p. 21; Storer, *loc. cit.*, January, 1897, No. 1100. I have impressions from Dr. Wm. Frazer, of Dublin.

2721. Obverse. A Maltese cross, crimson enamelled, edged with gold. In centre, a medallion with head of the queen, to left. Upon the arms of cross, above: Faith | to left: Hope | to right: Charity | Below: 1883 Reverse blank. Worn upon left shoulder, attached to dark blue ribbon edged with red, one inch in width, tied in bow. Gritzner, Handbuch der Ritter - und Verdienstorden, 1893, p. 119, fig. 161; Appleton's Cyclopædia, XI., 1886, p. 785; Storer, *loc. cit.*, January, 1897, No. 1102. The Order of The Royal Red Cross, instituted by Queen Victoria.

For services by English soldiers at Hong Kong in 1894, see under Epidemics, The Plague.

HOLLAND.

2722. As No. 1397, save S.D.V. on reverse. Bronze. 11.16 mm. With loop, and orange colored ribbon. Weber, Numismatic Chronicle, July, 1894, p. 132, No. 215D; *Ibid.*, English Medals by Foreign Artists, p. 82, No. 215D. In the Weber collection.

BELGIUM.

Dr. André Vesale (Vesalius) (1514-64), of Brussels and Paris.

His medals were previously stated as Nos. 1295-1310, but not described.

(1295.) Obverse. Bust, to left. Beneath, to right: Merlen F. Inscription: Andreas Vesalius Anatomicus Reverse. Within untied oak branches: Société | De | Médecine | De | Bruxelles | - | Messidor | An XII (1804.) Silver, bronze. 17.28mm. Edges and rim milled. Kluyskens, II, p. 577, No. 7; *Ibid.*, Revue de num. belge, XXX., 1874, p. 389; *Ibid.*, Num. med. belge, p. 8, No. 2; *Ibid.*, Num. Vésalienne, p. 2, No. 1; *Ibid.*, Cat., p. 129, Nos. 231-2; Duisburg, p. 176, CCCCLXXIV, 9; *Ibid.*, Cat., No. 611; Trésor de numismatique, XVI., p. 3, pl. 1, No. 12; Coster, Jetons historiques, p. 224, No. 969. In the Government and Disbrow collections and my own.

(1296.) As preceding, save bust on obverse facing, partially to left, and engraver's name beneath in centre; the oak branches on reverse are tied by ribbon, and there is a dot after Bruxelles. Silver, lead. 17.28mm. Edges and rim milled. Kluyskens, II., p. 577, No. 8; *Ibid.*, Num. med. belge, p. 8, No. 1; *Ibid.*, Num. Vésalienne, p. 2, No. 2; *Ibid.*, Cat., p. 129, No. 231, 1; Duisburg, p. 176, CCCCLXXIV, 10; *Ibid.*, Cat., No. 612; Trésor de num., XVI., p. 3, pl. 1, No. 13; Coster, *loc. cit.*, p. 224, No. 970. In the Government collection and my own.

(1297.) Obverse. Under trees, Versalius dissecting a cadaver. Legend: Sexcentos Exsecvit Vt Natvram Scrvtaretvr Exergue: T . M (ercandetti) . I . Reverse. The Hospital of San Spirito at Rome. Upon base: T Mercandetti Fecit Roma Inscription: Nosocomivm Exergue: A crowned armorial shield, over crossed laurel branches. At sides of the crown: Praemia - Stvdior(um). Silver, bronze, lead. 32.50mm. Kluyskens, II., p. 577, No. 9; *Ibid.*, Num. med. belge, p. 8, No. 1, 3; *Ibid.*, Num. Vésalienne, p. 2, No. 3; *Ibid.*, Cat., p. 129, No. 231, 3; Duisburg, p. 176, CCCCLXXIV, 11. Struck by Pius VII., as a prize for students at the hospital. In the Government, Brettauer and Disbrow collections, and my own.

(1298.) Obverse. Bust, to right. Beneath: W. Binfield F. Inscription: Andreas Vesalius Reverse. Natus | Bruxellis | In Belgica | An. M.D. XIV. | Obiit | An. M.D. LXIV. | - | Series Numismatica | Universalis Virorum Illustrium | - | M.DCCC.XX. | Durand Edidit Bronze, gilt. 26.41mm. Rudolphi, p. 163, No. 674; Kluyskens, II., p. 576, No. 12; *Ibid.*, Num. med. belge, p. 8, No. 6; *Ibid.*, Num. Vésalienne, p. 3, No. 4; Duisburg, p. 175, CCCCLXXIV; *Ibid.*, Cat., No. 603. In the Hunt collection and my own.

(1299.) As preceding, but under bust: Lefevre Bronze. 26.41mm. Kluyskens, II., p. 576, No. 3; *Ibid.*, Num. med. belge, p. 8, No. 5; *Ibid.*, Num. Vésalienne, p. 3, No. 5; Duisburg, p. 175, CCCCLXIV, 2; *Ibid.*, Cat., No. 604. In the Disbrow collection and my own.

(1300.) As preceding, but under bust: Le Boulonois F. Bronze. 27.43mm. Kluyskens, Num. med. belge, p. 8, No. 7; *Ibid.*, Num. Vésalienne. p. 3, No. 6; Duisburg, p. 175, CCCCLXXIV., 3; *Ibid.*, Cat., No. 605.

(1301.) Obverse. Bust, to left. Beneath: Simon F. Reverse. Natus | Bruxellis | In Belgica | An. M.D.XIV. | Obiit | An. M.D.LXIV. |* Bronze. 28.45mm. Kluyskens, II., p. 576, No. 1; *Ibid.*, Num. med. belge, p. 8, No. 1, 4; *Ibid.*, Num. Vésalienne, p. 3, No. 7; *Ibid.*, Cat., p. 129, No. 23, 4; Duisburg, p. 175, CCCCLXXIV, 4; *Ibid.*, Cat., No. 606; Piot, Cat. des coins, etc., p. 250, No. 964. In the Government collection and my own.

(1302.) Obverse. Bust, to left. Beneath: Jouvenel. Inscription: André Vésale Né-En 1514 Mort En 1564 Reverse. Above, a shelf with books, the middle one reading thus: De Corporis | Hum. Fa-brica | Lib. VII.-Basil. | 1543. Below: Vesale,

Que Bruxelles A Vu Naître | Fut Le Père De L'Anatomie. | 1537, Apres Avoir Etudié Et Avoir | Obtenu Les Plus Beaux Succès A | Montpellier, A Paris, A Louvain, A | Padoue Et A Venise, Fut Charge De | Professer L'Anatomie Et La Chirurgie | A L'Université De Padoue, Et Ce Fut L'A | Qu'il Composa Son Magnifique | Ouvrage Sur L'Anatomie Du Corps | Humain. Plus Tard Ayant Quitté | La Cour De Madrid Qui Lui | Etait Devenue Insupportable, | Il Alla Mourir A Zante | Où Les Vents Contraires | L'Avaient Jeté. Bronze. 29.47mm. Kluyskens, II., p. 576, No. 4, fig.; *Ibid.*, Num. med. belge, p. 8, No. 1, 8; *Ibid.*, Num. Vésalienne, p. 3, No. 8; *Ibid.*, Cat., p. 129, No. 231, 6; Duisburg, p. 175, CCCCLXXIV, 5; *Ibid.*, Cat., No. 607; Piot, *loc. cit.*, p. 361, No. 1245. In the Government collection and my own.

(1303.) Obverse as preceding, save break in inscription is after En instead of before it. Reverse. Il Fut | Le Père De | L'Anatomie. 1537, Apres | Avoir Etudié Et Avoir | Obtenu Les Plus Beaux | Succès A Montpellier, | A Paris, A Louvain, A Padoue | Et A Venise, Il Professa | L'Anatomie Et La Chirurgie | A'L Université De Padoue. | Il Y Composa Son Magnifique | Ouvrage Sur L'Anatomie Du | Corps Humain. Ayant Quitté | La Cour De Madrid Ou Il | Ne Se Plaisait Point Il | Mourut A Zante Ou | Les Vents Contraires | L'Avaient Jeté. Silver, bronze, gilt. 22.34mm. Edges milled. Kluyskens, II., p. 577, No. 5; *Ibid.*, Num. med. belge, p. 9, No. 1, 9; *Ibid.*, Num. Vésalienne, p. 4, No. 9; *Ibid.*, Cat., p. 129, No. 231, 7; Duisburg, p. 176, CCCCLXXIV, 8; *Ibid.*, Cat., No. 610; Piot, *loc. cit.*, p. 365, No. 1255. In the Government collection and my own.

(1304.) Obverse. Statue of Vesalius. At sides of base: L. Wiener - D'Ap(res). J. Geefs. Inscription: Statue D'André Vésale - Inaugurée Le 31 Déc(embre) : 1847 Reverse. Sous Le Regne | De Leopold I | Roi Des Belges. | - | Le Gouvernement | La Province De Brabant | La Ville De Bruxelles | Et | Le Corps Médical | Belge. Silver, bronze. 19.30mm. Guioth, Hist. num. belgique, p. 211, pl. XXXVI., No. 147; Coster, Jetons hist., p. 252, No. 1138; Kluyskens, II., p. 578, No. 10; *Ibid.*, Num. med. belge, p. 9, No. 11; *Ibid.*, Num. Vésalienne, p. 4, No. 10; *Ibid.*, Cat., p. 129, No. 231, 9; Duisburg, p. 175, CCCCLXXIV, 6; *Ibid.*, Cat., No. 608; Bouhy, Revue belge de num., XXXIX., 1883, p. 118, No. 182. In the Government collection and my own.

(1305.) Obverse as preceding. Reverse. The arms of Brussels (St. Michael slaying the dragon). Beneath: S. P. Q. B. (Senatus Populus Que Bruxellenses.) Inscription: Jeton De-Présence Silver, bronze, gilt. 19.30mm. Guioth, *loc. cit.*, p. 204, pl. XXV., No. 144; Coster, *loc. cit.*, p. 252, No. 1139; Kluyskens, Num. med. belge, p. 9, No. 12; *Ibid.*, Num. Vésalienne, p. 5, No. 12; *Ibid.*, Cat., p. 129, No. 231, 8; Duisburg, p. 176, CCCCLXXIV, 7; *Ibid.*, Cat., No. 609; Bouhy, Revue belge de num., XXXIX., 1883, p. 142, No. 231. Struck like preceding, at erection of statue of Vesalius at Brussels. In my collection.

(1306.) Obverse. Andreae Vesalio Scientiæ Anatomicæ Parenti. - Natus Bruxellis 31 Dec. 1514. Naufragus In Zacyntho. Obiit 30 Oct. Anno. 1564. Reverse. Auspiciis Leopoldi Primi, Belgarum Regis, Et Publico Necnon Provinciæ Et Municipii Aerariis De Prompta In Sumptum Pecunia Ut Et Ex Privat. Univ. Medic. Belg. Ordin. Collatione, Erectum Hoc Monumentum Et Dicatum 31 Dec. 1847. Bronze. 26.45mm. Guioth, *loc. cit.*, I., pl. XXXVI., No. 147; Kluyskens, II., p. 578, No. 11; *Ibid.*, Num. med. belge, p. 9, No. 1, 10; *Ibid.*, Num. Vésalienne, p. 5, No. 11; Duisburg, p. 176, CCCCLXXIV, 12; Revue belge de num., 1892, p. 288, No. 16. This is also in commemoration of the monument.

(1307-10.) His name and bust also appear upon the three medals and seal of the Royal Belgian Academy of Medicine.

There are the following additional ambulance medals:

2723. As No. 1399, but larger. 34mm. Communicated to me by Mr. C. Dupriez, of Brussels.

2724. As No. 1399, save smaller. Silver, enamelled. 8.12 mm. Van Peteghem, Médailles de 1870-1, No. 1028.

2725. Obverse. The Geneva cross, enamelled with black, upon white. Inscription: Volontaires Internationaux - Belgique Silver. Cross-shaped. With ribbon. Schulman Cat., 6 Oct., 1896, No. 608.

2726. Obverse. The Geneva cross. Belgique. Volontaires Internationaux Reverse. Ambulance. Devouement. Silver, enamelled. Communicated by Mr. C. Dupriez, of Brussels.

2727. Obverse. Arms of Belgium. Reverse. Souvenir Offert Aux Soldats Blessés Et Internes. - Les Belges Ont Eté Pour Vous Des Frères, Ne L'Oubliez Jamais. Silver, enamelled and without, bronze. 15.24mm. With tricolor ribbon. Van Peteghem, *loc. cit.*, Nos. 1030-32.

2728. Obverse as preceding. Reverse. Souvenir De Belgique 1870. Silver, enamelled. 15.24mm. *Ibid.*, No. 1029. Given like preceding to the wounded French and Germans.

2729. Obverse as preceding. Reverse. Andenken | Von | Belgien | 1870 Gold, silver bronze enamelled. Edge of reverse beaded. With ribbon of the Belgian colors. *Ibid.*, No. 1033; Revue belge de num., XXVII, 1871, p. 99, fig. Given to the convalescing German soldiers.

2730. As preceding, but An instead of Von. *Ibid.*, XXXVI., 1880, p. 484, note.

2731. Obverse as preceding. Reverse. Souvenir | De | Belgique | 1870 Bronze. Edge of reverse beaded. Distributed to the convalescing French soldiers. *Ibid.*, XXVII, 1871, p. 99, fig.

2732. Obverse as preceding. Reverse. Den Verwundeten Und Gefangenen Kriegern Als Andenken, 1870. Vergesset Niemals Dass Die Belgier Fur Euch Bruder Waren. Bronze, enamelled. With tricolor ribbon. Van Peteghem, *loc. cit.*, No. 1034.

2733. As No. 2062, save upon reverse there is: Soldats Allemands, 9 Nov. 1879, a star between A and B, and beneath: Dulce Et Decorum | * Pro Patriae (*sic*) Mori * Inscription: Das Vaterland Den In Belgien Verstobenen (*sic*) Deutschen Kriegern Silver, bronze. 20.30mm. *Ibid.*, Nos. 1174-5; Revue belge de num., XXXVI, 1880, p. 487, pl. XXIV, No. 8. In my collection.

FRANCE.

Arras.

2734. Obverse. The city arms, helmeted and supported by lions. Reverse. Administration Des Hospices De La Ville D'Arras. - Ambulances Militaires 1870-1871. Silver. 29.46mm. Van Peteghem, *loc. cit.*, No. 1019.

Besançon.

2735. Obverse. The Geneva flag, with the arms of B., and legend: Uti - nam Inscription: Comité International De Besançon | 1870-1871. At left of the date: Borrel, beneath a star; at right, Fecit, beneath a star. Reverse. Secours Aux Blessés Belligerants. 1864. Convention De Genève. 1866. Bronze. 32.50 mm. *Ibid.*, No. 1025, fig.

Caen.

2736. Obverse. The city arms; a shield, with tower and three stars. Reverse. Within a wreath the Geneva cross, and: Dr. Denis Dumont. Inscription: Ire Ambulance Du Calvados, Comite De Caen. Tin. *Ibid.*, No. 1017.

2737. As preceding, save there are three bees upon the shield of obverse, and the name on reverse is: Dr. Dumont - Denis. Tin. *Ibid.*, No. 1018.

Chartres.

2738. Obverse. The cross of Geneva, with shield of Chartres, Châteaudun, Dreux and Nogent-le-Rotron. Upon the cross: 1870. Inscription: Société Internationale De Secours Aux Blessés Des Armées De Terre Et De Mer. Reverse. A wreath. Comité Central D'Eure-Et-Loir. 1871. Silver, bronze. 27.42 mm. By Bercher. *Ibid.*, Nos. 1022-3.

Niort.

2739. Obverse. The Geneva cross. Société De Secours Aux Blessés Militaires. Reverse. A wreath. Souvenir De Reconnaissance 1870-1871. Tin. *Ibid.*, No. 1016.

Paris.

I am now able to more fully describe the following:

(1369.) Obverse. Oak wreathed head, to right. Beneath: Caque F. Inscription: Louis Philippe I - Roi Des Français Reverse. In front of crossed laurel branches, a serpent encircled stand, upon which a mirror. Inscription: Hopital Militaire De Perfectionnement | Concours. Silver. Octagonal. 20.30mm. In the Government collection and my own.

There are additional ambulance medals.

2740. Obverse. A wreath and the Geneva cross. Inscription: Société Internationale De Secours Aux Blessés 1870-1871. Reverse. Within wreath: Hommage De Reconnaissance Rendu Par Les Officiers Blessés A La Memoire Du Docteur Arendrup Mort Le I Août 1871 A L'Ambulance Du Parc de St. Cloud. Silver. 37.46mm. Van Peteghem, Médailles de 1870-1871, No. 1014.

2741. Obverse as preceding. Reverse. A wreath. No inscription. Tin. *Ibid.*, No. 1015.

2742. As Nos. 1402, 2067 and 2068 (Geneva cross), but larger. Bronze. 26.39mm. *Ibid.*, No. 1040. In the Government collection.

2743. Obverse. The Republic, irradiated and laureated, erect, resting upon a pillow inscribed: Constitution (etc.), and holding a laurel branch. Beside her, a beehive, plough, etc. To right: Oudiné. Inscription: Republique Française. Exergue: MDCCCLXX Reverse. Within oak branches tied by ribbon: Siège de Paris 1870-1871. - Souvenir D'Un Devoir Rempli. Am-

bulances Du 3me Arrondt. Bronze. 44.70mm. *Ibid.*, No. 1005, pl. 7, fig. 53.

2744. There is also a medal of the 1st Arrondissement ambulance. 24.38mm. Merely mentioned by Van Peteghem.

2745. Obverse. Laureated head of Ceres, to left. Beneath: Vauthier Galle F. Inscription: Republique * Française Reverse. Within laurel branches united by ribbon and rosette: Ambulances Municipales Du IX Arrondissement. Siège de Paris, 1870-1871. Bronze. 37.46mm. *Ibid.*, No. 1010, pl. 8, fig. 62.

2746. Obverse as reverse of No. 1313 (Monrocq and Regnier). Reverse blank. Bronze. 20.31mm. *Ibid.*, No. 1008.

2747. Obverse. Within a battery, a surgeon and two assistants raising a wounded soldier towards an ambulance, at the right. Beneath, at right: Guerchet Exergue: The Geneva cross. (Like obverse of No. 1428.) Reverse. Souscription Patriotique De La Presse Française Aux Blessés De Nos Armées 1870. Silver, bronze. 24.37mm. *Ibid.*, Nos. 984-5.

2748. Obverse and reverse as No. 1428, save two flowers and a fillet upon reverse. Tin. 24.37mm. *Ibid.*, No. 989.

2749. Obverse. Republique Française. Jeton De Presence. Reverse as that of No. 2304. Tin. 24.37mm. *Ibid.*, No. 995.

2750. Obverse. Female sacrificing at an altar. Inscription: Gloire Immortelle Aux Nobles Cœurs Morts Pour La Defe De La Patrie 1870-1871. Reverse as that of No. 1429. Tin. *Ibid.*, No. 993.

2751. Obverse. Arms of the city of Paris. Reverse as preceding. Bronze. *Ibid.*, No. 992.

2752. Obverse as that of No. 1407 (Monuments De La Ville De Paris, etc.). Reverse. Within serpent circle: Secours Aux Blessés Pendant et Apres La Guerre. *Ibid.*, No. 954.

2753. As No. 1413 (Maison de la B. J.), save with 1870-71. *Ibid.*, No. 975.

2754. Obverse as preceding. Reverse. La Teâtre De L'Odeon, etc. *Ibid.*, No. 966.

2755. Obverse as preceding. Reverse like that of No. 1420, save Ambe Mile De La Presse. *Ibid.*, No. 960.

2756. As No. 1422 (Le Grand Hotel, etc.), save with 1870-1871. *Ibid.*, No. 970.

2757. Obverse as preceding. Reverse. Les Ambulances De La Presse Ont A Leur Tête Le Citn Armand Gouzieu A La Bataille Du 2 Xbre 1870. *Ibid.*, No. 961.

2758. As preceding, save beneath the Geneva flag 1870-1871. *Ibid.*, No. 962.

I can now more fully give the following:

(2070.) Obverse as preceding. Reverse. Sébert, President (Aide De Mmes Desforges, Dérès, Gamard Et Orcibal), Fait Une Ambulance De La Chambre Des Notaires De Paris. *Ibid.*, No. 976. See subsequently.

2759. Obverse as preceding. Reverse. Ambulances Militaires Etablis Dans Les Arrts Par Des Citoyens. Souvenir Personnel 1870-1871. Upon each side, the Geneva flag. *Ibid.*, No. 983.

2760. Obverse. Within laurel wreath: Republique Française. Inscription: Offrande Nationale Autorisée 1870. Reverse. Within laurel wreath: 50 Centimes. Inscription: Souvenir D'Un Don Patriotique Pour Nos Blessés. Copper, enamelled. 18.28mm. *Ibid.*, No. 1038.

2761. Obverse. Bust of the Republic. Reverse as that of No. 1583 (Rochereau). Lead, bronzed. 29.46mm. *Ibid.*, No. 1036.

2762. Obverse. The Hotel des Notaires. Inscription: Lex Est Quodcumque Notamus. Exergue: Chambre Des Notaires De Paris. Reverse. Within wreath of oak and laurel: Hommage De La Compagnie Des Notaires De Paris A—— Pour Son Courageux Devouement. Inscription: Siège De Paris 1870-1871. Ambulance De La Chambre Des Notaires. Silver, tin. 38.60mm. *Ibid.*, Nos. 999-1000. See also previously.

2763. Obverse as preceding. Reverse also, save within the wreath: A Monsieur - - - - Souvenir De La Compagnie Des Notaires De Paris. Tin. *Ibid.*, No. 1001.

2764. Obverse. Within a chain, the arms of Paris, with legend: Fluctuat Nec Mergitur. Inscription: Siège De Paris. 1870-1871. Combats De Chevilly, De Rueil, De Bagneux, De Villiers, De Drancy, De Buzenval. Reverse. Ambulance De La Presse. Section D'Ouest - Ceinture Dr. Lunier Medn En Chef. MMrs Beral, Boutigny, E. Chopard, De Courtys, Darvaris, Durand, Figueroa, Foucaud De L'Espaguery, Goldenstein, Joly, Laskowski, Mitivié, Valdes, Docteurs. Auger, Barrault, Béchard, Ad. Chopard, Hibon, Kohly, Mauvoisin, Nöel, Peride, Simon, Medecins. Arnould, Desavenières, Guyot, Sionnest, Max, Schweyer, Volontaires. Inscription: Devouement A La France Affection Mutuelle. Tin. 44.70mm. *Ibid.*, No. 1002.

2765. Obverse as preceding. Reverse. Ambulance De La Presse, Section De La Maison Blanche. Dr. H Bocquillon Medn

En Chef. Dr. Rozier, Dorville, Dubosq, Golstein, Jongla, Le Boucher, Dr. Jacqueme, Chauvin, Kalbfleisch, Mégérand, Poussin, Delguey, Jovita, Lupus, St. Joseph, Ullé, Bercaru, Hercod, Morcrette, Dr. Rabejac. De Rouquetaillade. Inscription as in preceding. Tin. 44.70mm. *Ibid.*, No. 1003.

2766. Obverse. Two flags and a trophy. Within wreath of leaves: 1870-1871. Inscription: Souvenir Du Siège De Paris. Reverse. A mural crown. Temoignage De Reconnaisance. Inscription: Ambulances Volantes 1870-1871. Silver. 26.41mm. *Ibid.*, No. 997. In the Brettauer collection.

2767. Obverse. Bust of the Republic. Reverse. Within oak wreath: Sebert President (etc., as on reverse of No. 2070). Copper. 18.29mm. *Ibid.*, No. 998.

2768. Obverse. Ambulance men assisting a wounded soldier. Reverse. Ambulances De La Presse. Annes Minre De La Guerre. Siège De Paris 1870-1871. Silver, with Geneva cross enamelled. 8.14mm. (See No. 2304.) *Ibid.*, No. 1044.

2769. Obverse. Head of Liberty. Reverse. La Société Internationale.-Le Comte Serrurier Regle Le 2Xbre Un Armistice De 1 He Pour Enlever Les Blessés. Tin. 30.46mm. *Ibid.*, No. 268.

2770. Obverse. Group of soldiers. Upon a tablet held by two of them: Les Hommes Sont Egaux Devant La Loi. To left, R beneath a level; to right, F beneath a liberty cap. Exergue, between two stars: Siège De La Ville De Paris Reverse. The Geneva cross. * Les Frères Des Ecoles Chretiennes Ont Creusé Les Fosses Et Enterré Les Morts Entre Joinville Et Chanpigny, Après La Bataille Du 2 Xbre 1870 Copper and zinc, copper silvered. 32.50mm. *Ibid.*, Nos. 269-70.

2771. Obverse as preceding. Reverse. Sir Richard Wallace, Noble Cœur Anglais A Donné Pour Etablir Une Ambulance 300,-000 F. (etc.) 27 Décembre 1870. Copper, silvered. 31.49mm. *Ibid.*, No. 283; Weber, *loc. cit.*, p. 96, No. 243.

2772. Obverse. Paris, seated upon a throne, holding flag and protecting an infant. Siège De La Ville De Paris. Exergue: Republique Française Née Le 4 7bre 1870. Reverse as preceding. Tin, bronzed. 44.70mm. Van Peteghem, *loc. cit.*, No. 284.

2773. Obverse. Bust of Liberty. Reverse as preceding. Tin. 44.70mm. *Ibid.*, No. 285.

2774. Obverse as that of the last but one. Reverse. Apres Les Batailles Des 29, 30 9bre Et 2 Xbre 1870 Sur Les Bords De

La Marne,—Les Ambces De La Presse, Les Frres Des Ecoles Chrétiennes Enterrent Les Morts A Champigny - Ici Reposent 685 Soldats Et Offrs Français Tombés Sur Le Champ De Batlle Ensevelis Par Les Amb. De La Presse Le 8 Xbre 1870. Tin, gilt. 44.70mm. *Ibid.*, No. 273.

2775-76. There are also two balloon jetons of Wallace, similar to those of Papin and Parmentier. Van Peteghem Cat., Nos. 416, 417; Weber, *loc. cit.*, p. 96.

2777. Obverse. Ambulance men collecting the wounded. Reverse. République (etc.) Jeton De Presence. Tin. 22.35mm. *Ibid.*, No. 387.

2778. Obverse. The defence of the ramparts. Souvenir Du Siège De Paris 1870-1871. Reverse. Two crossed flags. Ambulances De La Presse. 24.38mm. *Ibid.*, No. 698, fig.

2779. Obverse. The arms of Paris. Reverse. Le Citoyen Yrose Laurans Offre 60,000 F. Aux Blessés (etc.) De Paris. 21 Xbre 1870. Tin, gilt. 30.46mm. *Ibid.*, No. 281.

Perrache.

2780. Obverse. Two ambulance men assisting a wounded soldier upon a stretcher. Convention De Genève. Reverse. A wreath. Ambulance De La Gare De Perrache 1870-1871 Bronze. 25.41mm. By Bonnet. *Ibid.*, No. 1024.

Tourcoing.

2781. Obverse. The city arms. Comité De Secours Aux Mobiles Et Aux Mobilisés De La Ville De Tourcoing Et De Ses Cantons 1870-1871. Reverse. Société De Secours Aux Militaires Tourcoing. Silver, tin. 38.59mm. *Ibid.*, Nos. 1020-1.

Versailles.

2782. Obverse. Arms of the city. Reverse. A wreath. Société De Secours Aux Blessés. Le Comité De Versailles 1870-1871. Tin. 30.46mm. *Ibid.*, No. 1013.

The following belongs also in this connection:

2783. Obverse. Laureated bust, to right. Beneath: B. Du Vivier F. (in small letters). Inscription: Lud. XV. Rex - Christianiss. Reverse. Prix | Pour Les | Chirurgiens | De La Marine | Du Roy Exergue: Fondé En 1768 Bronze. 26.41mm. Cat. des poinçons, etc., p. 146; Méd. Fr. du Musée mon., p. 248, No. 146a; Kluyskens, Revue belge de num., XL, 1884, p. 52; *Ibid.*, Cat., p. 45, No. 37. In my collection.

2784. As preceding, but engraver's name on obverse is in large letters. Bronze. 26.41mm. In the Government collection and my own.

2785. Obverse. Laureated head, to right. Beneath: Roettiers Fil F Inscription: Ludovicus XV. Rex Christianissimus. Reverse as preceding. Bronze. 22.34mm. Méd. Fr. du Musée mon., p. 248, No. 1463. In my collection.

For the French Military Hospital in 1744 at Boesingen, see under Switzerland.

For Dr. Denis Papin, see previously, under Diet.

See also under Italy.

(To be Continued

MEDICAL EXCERPT.

By T. P. Corbally, A. M., M. D.

Tuberculosis—Serum Treatment.—The treatment of tuberculosis with medicinal serum, is the subject of an article by M. Berlioz of Grenoble ("La France Médicale," 19th of August) based on the principle announced by M. Grancher that the wasting of the organism and the bacillus are the two conditions necessary for the development of tuberculosis, and the treatment must have for its object the restoration of the strength of the organism. With this object in view he has employed, for the purpose of arousing the torpid condition, the normal nutritive serum of beef, with which he has incorporated a medicinal agent whose antitubercular action is well known to exist in the phosphate of gaïacol. In a second serum, he still further increases the stimulating properties of the above remedy by the addition of extracts from the different organs: the testicle, the liver, the spleen, the brain, the lungs; thus combining the serotherapy with the opotherapy.

The employment of these serums, which are used in injections, enemata of from one to two bottles of 30 grams each a day, produces two distinctly different phenomenon as follows: 1, the increase in the weight of the diseased, which in one of his cases was 12 kilograms in three months; in another case it was 4 kilograms in fifteen days; 2, an increase in the quantity of urea, which was usually double and sometimes even quadrupled. In consequence of this improvement in the general condition the other symptoms were also proportionately improved: the cough, the expectora-

tion, the night sweats. The change in the local lesions was effected as the others; but more slowly. The treatment should be continued for many weeks, and even for months.

The acute form of the tuberculosis is not a contra-indication for the treatment. M. Berlioz cites two cases in which the increase in weight went on steadily, notwithstanding the fever, and the lesions began to improve in one case at the end of two and in the other after three months.

CREOSOFORME.—M. le Dr. Brissonet, of Tours ("La France Médicale," 19th of August), has obtained new combinations of creosote having a very feeble odor and little taste, and is well borne by the stomach. The phosphate of creosote, a colorless liquid, the tannophosphate of creosote, an amber-colored liquid which increases the urea and the acidity of the urine. Creosoforme is a greenish powder resulting from the combination of formic aldehyde with the creosote.

INFLUENZA.—M. Rappin, of Nantes, read before the Congrés de l'Association pour l'Avancement des Sciences ("Le Progrès Médicale," 20th August) an interesting essay on the various epidemics of la grippe that he has studied for many years past in Nantes, and in the neighboring districts. In the many different cases that he has examined from a bacteriological point of view, he has succeeded in isolating one form of bacillus, which seems to him to be the pathogenic agent of the disease.

M. Nicolas, of Lyons, remarked that on the photographs of the bacillus of Rappin there was little difficulty in distinguishing some analogy with the pneumo-bacillus of Friedlander.

M. Nicolas of Nantes read a note on an epidemic of grippe that occurred in Nantes in which many cases presented great difficulty in their differential diagnosis from typhoid fever. In these cases the sero-diagnostic rendered some service.

M. Bonamy, of Nantes, gave the history of a number of case of croup that were operated on and cured in the Saint James Hospital, among the patients that had been isolated. He lays great stress on the good effects produced by the warm vapor of the eucalyptus that was maintained constantly in the operating room.

If these studies and experiments will result in establishing a reasonable degree of certainty between any form of bacillus and that almost intractable disease that has caused so much sickness,

and resulted in so many deaths, it will prove a great blessing to humanity and to the profession.

ENLARGEMENT OF THE PROSTATE.—M. le Prof. Poncet, of Lyons ("Gazette Hebdomadaire," 7th August), presented to the Academy of Medicine an interesting paper in which he showed the advantages of cystostomy in inflammation of the prostate, with enlargement. This operation is indicated in cases of prostatitis, which have been divided into two categories.

1. Cases of prostatitis that are free from all danger of poisoning by the urine, and in which the urine does not present any pathological changes. These may be classed generally as mechanical; that is, in patients in whom there exists an obstacle more or less difficult to be overcome in the voiding of urine.

2. In cases of prostatitis with indications of uremia, or of urinary septicemia. The functional troubles then frequently pass into the second class. The danger is in the aggravation of general conditions already existing.

In the first class of cases in which the prostatitis is mechanical, cystostomy ought to be performed; when the employment of the catheter is impossible, or when it is very difficult or painful, produces fever or is badly supported by the patient, in every condition that renders it in any way dangerous; when there are false passages; in cases of vessical hæmorrhage that have resisted other modes of treatment; in vessical hæmatocele, in large clots of blood which, notwithstanding the use of the sound, interfere with or prevent micturition.

We always reject the employment of the sound *in situ*, punctures with capillary needles, and trocars. When operations are necessary, it is far preferable to substitute for them the formation of a hypogastric meatus, a well-defined and harmless operation.

Cystostomy is also indicated in cases of prostatitis if symptoms of poisoning exist; that is, in those attacked with uremia or urinary infection; in acute forms or in chronic cases that admit of so many and varying conditions.

In all such cases and in others that will appeal to the judgment and decision of the surgeon, this operation will be safe and generally successful.

FOR TINNITUS AURIUM, not dependent on any disease of the ear (even though there be a collection of cerumen), Model and

Robin ("La Médecine Moderne") employed successfully cimicifuga racemosa, which usually stopped the noise in the course of three days after the beginning of the treatment. The average dose was thirty drops per diem; it failed in cases that had lasted for over two years. The author considered the buzzing in the ears as due to a reaction of the auditory nerve, which is subjected to a direct or indirect irritation. Cimicifuga racemosa, which is known to act as an antispasmodic in labor, also as a diaphoretic and somnifacient, as well as an efficient remedy in pruritus, exerts an influence on the circulation of the ear and on the reflex irritability of the auditory nerve.

PNEUMOTOMY FOR GANGRENE.—MM. Balliard and Bernard ("Gazette Hebdomadaire, 26th June) have performed pneumotomy on one of their patients attacked with pulmonary gangrene. This dangerous operation may be successful when employed in cases of pulmonary gangrene in which the disease is limited in extent, and having a single point of origin; but the diagnosis of such cases is not always certain.

M. Netter remarked on this case that pneumotomy is always dangerous if bronchial dilatation exists.

The patient of MM. Baillard and Bernard was a man about fifty years of age, of a cachectic habit, who on his entrance into the hospital expectorated fetid pus. Besides, at the base of the right lung complete dulness was observed. A centre of pulmonary gangrene was found situated in a hepatized mass at the inferior lobe on the right side. This point, on being punctured, yielded only blood.

On the 26th of March last a thoracautomy was performed and, after resection of two ribs, a large incision was made into the lung with the thermo-cautery.

An abundance of fetid pus with shreds of diseased lung followed the opening. After the operation the fetid expectoration disappeared; however, a fever that had not existed before followed; the thermometer went up to 40 per cent. and the patient died nine days after the operation.

At the operation a purulent collection of encysted matter was found in the right lung in front of and below the diaphragm. On account of its situation this collection escaped observation. Besides a pericarditis and hypertrophy of the liver were found. Both lungs were free from tuberculosis.

EDITOR'S TABLE.

SANITARIAN, OCTOBER, 1898.

☞All correspondence and exchanges, and all publications for review, should be addressed to the Editor, Dr. A. N. Bell, Brooklyn, N. Y.

PREVENTIVE MEDICINE.

Richmond, Ind., Sept. 10, 1898.

DEAR DR. BELL: The September issue of the SANITARIAN is in hand, and I have read your address on "A Quarter-Century of Sanitary Work," presented at the Quarter-Centennial celebration of the Michigan State Board of Health, with so much satisfaction that I desire to congratulate you for a service so well done. You have given an intelligent and instructive résumé of the development of sanitary science during the last twenty-five years and a correct picture of general preventive medicine, as now practised. I deem it fortunate that you were thoughful to present an epitome of the "preludes" as a helpful introduction to the more formal part of your dissertation. An important lesson conveyed by the entire essay is the fact that the present positions of value in State medicine have been attained, as in all other branches of art and science, through rational culture—i. e., by the submission of theory and speculation to practical knowledge based on and verified by trained observation and experimental demonstration. Sanitary science is not advanced by mental cataclysms any more than other departments of science.

For some years my mind has been steadily converging to the conviction that "Knowledge of Living Things" is the *ne plus ultra* of human enlightenment, and, accordingly, my contention is that he is the wisest sanitarian and the best equipped for mundane usefulness who has clearest and fullest knowledge of vital activity. The whole art and science of sanitation rests upon a knowledge of vital energy—as unchangeable as the Creator who ordained it.

The science of biology comprehends all phenomena pertaining to vital processes, normal and abnormal, animal and vegetable; in full view of this fact, four years ago, in a public address, I announced to a medical association the dogma that for the future all fruitful progress in general medicine must be along biologic lines. Do you not coincide?

Certainly it is a patent proposition that, whatever the shortcomings of practical curative medicine, they are due to lack of knowledge of what biology has to teach. And it is an equally obvious fact that in the past, educational institutions did not appropriate sufficient time to inculcate what medical students ought to know and medical schools ought to teach.

Without a peradventure it was the conviction of Dr. Rauch, so worthily noticed in your address, that the scheme of existing medical education did not embrace all that ought to be taught nor afford time for thorough instruction in even the limited curricula promulgated, that led him to so earnestly and persistently plead for an extended curriculum and four years' time to qualify a student as a worthy guardian of private and public health; and more recently, since the death of Dr. Rauch, the late Prof. Parvin, in a public address dealing with the proper preliminary training of a prospective student of medicine, doubtless to support his personal views, read notes from Surgeon-General Sternberg and Prof. Wood indicating their conviction that a term of six to eight years is demanded for full instruction in the present wide field of medicine and to fit him for the responsibilities of an exacting profession.

If it be true that the major attainments in sanitary progress reported by you to the Quarter-Centennial celebration in Michigan are due to the work of the bacterian department of biology, pursued mainly for other purposes, what may we not hope for when the whole scope of biology is cultivated with special reference to its illumination of preventive medicine, as now dimly seen by prophetic vision, and what an inspiring privilege it will be for your oratorical successor to recount the triumphs of biologic culture at the Semi-Centennial celebration of the Michigan State Board of Health!

Pray pardon this prolixity in my endeavor to express an appreciation of your address, and believe me now, as ever, your sincere friend, JAS. F. HIBBERD.

YELLOW FEVER PREVENTION.

It is difficult to imagine anything more preposterous than the pretense of having prevented yellow fever by the serum treatment, as practised by Sanarelli, because a number of persons who had been exposed to one suffering with the disease did not contract it. The same result occurred to four students and fifteen

nurses engaged in tending the yellow fever patients in the Touro Infirmary, New Orleans, under the direction of Dr. Frederic Loeber, a year ago, where cleanliness and aeration were relied upon as the only needful specific—yellow-fever being a non-contagious disease.

The recent recognition of the disease in Orwood, Water Valley and Taylor, Mississippi, two hundred miles from the coast, and with no traceable communication with any infected place or person, where, it is now (September 15th) alleged the disease existed for two months before it was recognized, is particularly puzzling to the authorities who have habitually neglected local sanitation and wholly relied upon quarantine for protection. Meanwhile there has been an extensive epidemic of "suspicious" cases, and a few real ones, at widely distant places: Key West, Galveston, New Orleans, Jackson, Emporia, Greenwood, Meridian, Franklin (La.), Benoit (Ark.), and other places, and a still more extensive epidemic of quarantines, embarrassing to commerce and travel, and, as thus conducted—heterogeneously and unintelligently—more conducive to the maintenance of the disease than to its suppression. However, great credit is due to the officials, aided by the Marine Hospital Service, for preventing its spread.

The Mobile "Register," commenting on the fact that "Gulf coast people have been apprehensive all summer that yellow fever would gain an entrance by way of Key West," adds:

"And now their fears are realized. At one time it was said that no persons from Cuba would be brought into Florida this summer, but that all returning soldiers and other employes of the Government would be taken to some Northern port. Evidently the promise has not been kept."

But now that the fever has capriciously leaped over the Mobile and other coast quarantines to the interior of Mississippi, the "Register" may possibly discover that the quarantines now in vogue are worse than useless, and that nothing short of a thoroughly organized, wide-reaching national system can effectually prevent the introduction of exotic diseases and protect the people against such embarrassment to travel and traffic as that which now obtains in the Gulf States, as the result of independent action.

But the practical lesson of the recent outbreak of yellow fever in the interior of Mississippi is needful *local sanitation*. The

State Board of Health of Mississippi is personally, at least, well equipped; and, presumably, sufficiently empowered by law to require and supervise such local Boards of Health as would effectually prevent such occurrences. And the practical lesson is no less applicable to other State Boards than to that of Mississippi.

THE "PROTECTOR," recently equipped by U. S. Marine Hospital Service, is the first vessel in the world to be equipped solely for the purpose of disinfection. She is about eighty feet long. On deck is a structure fitted with bathrooms. It is intended that soldiers or immigrants shall come on board, take a bath and give up their clothing, receiving new clothes in exchange. The old clothing will then be taken below, thoroughly sterilized and then returned to the owners.

In the bow are a sulphur furnace, combustion chamber and fan. Amidship, a sterilizing chamber and formaldehyde generator. A boiler and a water heater are near the stern. The sulphur furnace will be used for disinfecting vessels. The hatches of the vessel to be treated will be battened down, and piping carried from the "Protector" to the hold of the vessel. Through this piping sulphur fumes will be pumped by the fan in the "Protector." Air is drawn into and through the sulphur furnace, baffle-plates being so placed as to thoroughly mix air and sulphur fumes, a fairly perfect combustion being thus obtained. The sterilizing apparatus consists of a cylinder, a chamber and an exhauster. The chamber is of iron, and though opening at both ends, it can be hermetically sealed. The exhauster consists of a steam jet for removing air from the chamber. The generator is a copper cylinder, divided vertically into two parts, a steam coil being placed in each part.

The clothes to be sterilized are placed in the chamber, the air in which is removed by means of the steam-jet exhauster. Formaline is placed in one part of the generator and steam admitted to the coil, and when sufficient heat has been thus applied to generate the required amount of formaldehyde gas, the gas is admitted to the chamber. At the end of half an hour, ammonia, placed in the other part of the generator, and similarly heated, is admitted to the chamber. This neutralizes the formaldehyde, and the clothes are removed and returned to the owners.

ARMY AND NAVY MEDICAL OFFICERS AND SUPPLIES.

Dr. Karl Rudberg, Staff Surgeon of the Royal Swedish Navy, in New York, August 23, on his way home to report to his Government the results of his observations of the American army and navy at the front in Cuba and Porto Rico, expressed himself enthusiastically over the achievements of the American Medical Corps, which he declares has accomplished wonders in the face of apparently insuperable obstacles, and over the bravery of the American regulars, whose patient endurance of suffering he decleares he can never forget.

Asked what he considered the greatest novelty of the war from the medical point of view, Dr. Rudberg answered promptly:

"The hospital ship Relief. That was to me the newest thing and the most interesting. It was chiefly to see it that I came over. There have been ambulance ships before, but never a real hospital ship, fully equipped for operating on and caring for wounded men, such as the Solace and the Relief. The Geneva Convention provided for such ships, but it was left for the United States to equip the first one as a model for all the world.

"The Relief ought to be sent to the Paris Exposition," said Dr. Rudberg, "where all the world could see what you Americans have done in the interest of the humanizing of warfare. I suggested that to Major Torney, but he tells me that the ship is too deep to go up the Seine."

Concerning the charges against the Medical Department of the Army, Dr. Rudberg spoke guardedly. "My opinion is," he said, "that the medical officers did the best they could under the circumstances. There was an abundance of hospital supplies and ambulance equipment at Tampa, as I can testify from my own observation, but most of it was left when Gen. Shafter's expedition sailed in such a hurry. Much of the medical equipment was left on the transports, and never unloaded."

Dr. Rudberg spoke in high praise of Drs. Van Reypen and Sternberg, Surgeons General respectively of the navy and army, whose services to the cause of medical progress and science in the present war would, in his opinion, receive world-wide recognition. He sailed for home on the Fürst Bismarck August 24th.

Other competent and wholly independent observers are in entire agreement with Dr. Rudberg. Insomuch, from all sources of information, there is no room to question the responsibility for the neglect of the sufficiency of medical supplies, provided by the Medical Department and at hand at the time of the hurried em-

barkation of the troops from Tampa. It rests wholly upon the shoulders of the officer in command—General Shafter. And so, too, the fatal results of the needlessly protracted exposure in the trenches before Santiago. He was alike obtuse to the dangers of the climate and the need of medical supplies.

Surgeon-General Sternberg is second to no one in the medical corps of the army in practical knowledge of its ordinary needs. But besides service in Florida, where he contracted yellow fever twenty-five years ago, and in other unhealthful sections of the country, requiring special care for the protection of the health of troops, he has, by special detail, temporarily resided in New Orleans, Cuba, Rio and Mexico, for the investigation of yellow fever, during periods of its prevalence, and acquired extraordinary knowledge of that disease and its conditions. Nevertheless his knowledge and his office were ignored by the officers in command for the needful sanitary requirements of the Cuban campaign.

Camps were projected and pitched on sites more with reference to the profits of their projectors than to the health of the soldiers. The officers in command held themselves above the need of any direction—or even advice—by the Surgeon-General of the Army; they had their own regimental surgeons, and some of these, however competent in other professional knowledge, while confessedly ignorant of the regulations and medical supplies of the army, promptly discovered that, because they could not have their prescriptions for articles in bulk filled, as they would have expected at wholesale drug houses in civil life, "the Medical Department as it exists at present is both incompetent and inefficient!" Inspired by such conceits, they were purblind to or ignorant of conditions more dangerous to the health of their regiments than the need of such medical supplies as they required. The chief need has been sanitary knowledge, or the culpable neglect of it, in default of which the soil was fouled and the drinking water polluted, and typhoid fever cultivated. Just as these pages are sent to press the announcement is made that the Secretary of War has invited Surgeon-General Sternberg to accompany him on a tour of inspection of the camp grave-yards; and the Secretary is reported to have said: "The greater trouble seems to have arisen from the neglect of sanitary regulations. The executive officers of each regiment are responsible for that. The blame for the sickness rests, first, on the Colonel and then upward to the highest General in the camp. General inexperience and reckless

exposure to unnecessary risk are the real causes of all our army trouble."

"WHAT DO I GET OUT OF IT?" is one of the official stumbling blocks encountered by the discoverer of a certain disinfectant when he sought to induce the War Department to use the germicide at the sick camps. In his innocence and surprise, the maker responded: "The assurance that by using it disease and fever will be greatly lessened, and the ground rendered pure and wholesome." The official laughed in the speaker's face: "I know it is an excellent thing, but we won't take it just for that." Apparently, "humanitarian" ideas do not influence men who "run things" on red tape what-do-we-get-out-of-it principles. Is this one of the shameful "mistakes" which have cost so many of our brave boys their lives and health, or is it a well-understood "business transaction," sanctioned by the Government? The "pull" in this war has been quite general—especially in the selection of camp sites.

ARE CANNED GOODS FIT TO USE?—The so-called canning industry has made such vast strides all over the world, and notably in America (says the Scientific American), that it is not surprising that this method of preserving foods should form the subject of inquiry at the hands of the bacteriologist. When we learn than in Baltimore alone 1,250,000 bushels of oysters are annually canned and that the United States is responsible for 120,000,000 cans of tomatoes, and of other articles, such as fish of various kinds, and fruits, etc., in similarly large numbers, it is remarkable that Messrs. Prescott's and Underwood's paper, "Micro-organisms and sterilizing processes in the canning industry," published in the Technology Quarterly, should be the first contribution to so important a subject. These gentlemen have specially studied the bacterial flora of canned clams and lobsters, which have broken down, or, in other words, been imperfectly preserved. In every case where "spoiling" had occurred, bacteria were present in large numbers, while in no instance were any discovered in sound cans. Sometimes only a single variety, or a pure culture of a particular microbe, was found in unsound cans, but usually the latter contained a mixture of several species. Nine different bacteria were selected and isolated for subsequent study, both as regards their macroscopic and microscopic appearances; two of these were cocci, the remainder bacilli forms. These bacteria were afterward inoculated into the contents of sound cans, with

the result that the latter invariably decomposed, while experiments were also made to test the method of applying heat to canned articles which would most effectually destroy the chances of these micro-organisms surviving and spoiling the contents. An account of the numerous experiments carried out by the authors on this highly important commercial side of the inquiry will be published later; meanwhile their investigations go to show that, given a proper control of the temperature, it is possible to preserve clams and lobsters with absolute certainty, and in a better condition than has hitherto been possible.

DANGEROUS FILTERS.—Persons who rely upon domestic filters to purify water for household use will be interested to learn that on the authority of the State Board of Health of Maryland, such filters may steadily lose efficiency until they become first-rate culture beds for bacteria. An example cited is that in the case of a man in Baltimore who sends the whole water supply of his house through a large filter, and subsequently puts his drinking water through one of the small domestic filters common in the market. A test showed that on a day when the city taps were running 510 bacteria to the cubic centimetre, the large filter was delivering 9,900 bacteria in the same quantity of water. When the large filter was repacked, only nine bacteria per centimetre got through it, but this same water when passed through the small filter came out with seventy-one bacteria per centimetre. A further example cited is from the office of the Baltimore Health Department, where a filter, supposed to be the best in the market, was in use. The effectiveness of that filter was so shortlived that the precaution was observed of boiling the water after it was filtered.

DR. PAUL PAQUIN *vs.* J. T. MILLIKEN.—According to the "Medical Herald" for July, Dr. Paquin has succeeded in proving fraud in his late suit against Mr. Milliken. The judge said that the "fraud claimed by the plaintiff had been so clearly established that it was not necessary to take the case under advisement," and directed that a decree be drawn ordering the return to the court for cancellation of $7,500 in notes given to the defendant by Dr. Paquin.

DEATHS FROM SICKNESS IN WAR.

"Figures and War": the latest technical book about armies, their contingents, their losses and their expenses, has been published by Otto Berndt, a brevet-captain attached to the military staff of the Austrian empire. Though the extent of the mortality, consequent upon the shocking neglect of the authorities to profit by common knowledge of army sanitation, in the assembling of the forces and during the recent invasion of Cuba, it is nevertheless interesting to compare its small proportions with the immense figures recorded in Captain Berndt's work.

The losses through sickness in war times are great, even in temperate climates. During the Crimean War, when the Anglo-Franco-Sardinian forces reached the total of 428,000 men, there were 362,000 sick, 69,200 of whom died. Only 6,200 soldiers died from wounds. The war of 1870-71, between France and Germany, cost the largest number of lives. Out of 200,000 Germans surrounding Metz, 130,000 were in hospitals, and out of a total number of 295,000 sick men taken care of in German hospitals only 88,000 were there on account of wounds received on the battlefield. The total number of German soldiers sick or wounded amounted to 812,000 men. (According to the statistics of the American Civil War, the total number of deaths was 304,369. Killed in battle, 44,238; died from wounds, 49,205—93,443. Died from disease, 186,216.)

The figures will be still increased in battles of the future, which, according to the Austrian military writer, will have a longer duration. The Schleswig-Holstein war closed the period of short and decisive battles. It may seem strange at first sight, especially when it is considered that means of destruction are more powerful now, having been constantly improved. The perfection of modern firearms, however, compels the combatants to begin fighting at long range and make it last longer.

Since the Sadowa war of 1866 and the Franco-German one of 1870 nations are trying to see which one can put into line the largest number of men. Thus, at this moment the effective force of European continental armies on a war footing is as follows: Russia, 2,500,000 men; Germany, 2,300,000; France, 2,200,000; Austria-Hungary, 1,300,000, and Italy, 800,000. Grouping the nations according to their present relations, the above figures show that the alliance of France and Russia can put in the field 4,700,000 men, and the old triple alliance 4,400,000.

Captain Berndt does not seem overenthusiastic in regard to the effectiveness of those stupendously large masses of military men. "Perhaps," he says, "some Alexander or Bonaparte may arise, who, at the head of a small army of picked men, may fall upon that heavy and unwarlike mass, and may disperse them in all directions. Then nations may perhaps revert to the system of armies small in number but composed of trained men, and perhaps they will let those men have the exclusive privilege of a trade which, after all, is not congenial to peaceful citizens."

The Austrian military writer has not given his ideas about naval wars, but it is probable that he considers the latter somewhat as he does the wars on land. This was to be expected from an Austrian officer who remembers how his countryman, Admiral Tegethoff, ran down and destroyed with his wooden vessel the Italian armorclad at the battle of Lissa, in 1859.

FRENCH ARMY'S VITAL STATISTICS.

A report on the health of the French army published recently (London "Times") shows that the death rate has declined from 10.55 per 1,000 in 1875 to 4.56 in 1896 and 1897. No explanation, however, is given of some of the fluctuations, such as the increase from 8.49 in 1874 to 10.55 in 1875, from 7.36 in 1879 to 9.46 in 1880, of from 5.81 in 1890 to 6.77 in 1891. The effect of the Tongking and Madagascar expeditions obviously ought to have been noted, as also that of the reduction of the term of service from five years to three. The report professes, nevertheless, to trace the successful attempts to check certain maladies. Thus vaccination and revaccination are credited with the virtual extirpation of small-pox, which up to 1878 caused about 100 deaths per annum, whereas in 1896 the number fell to 2, and in 1897 to 1. Filters have in like manner checked typhoid fever, though at Marseilles, Nice, and Castres, owing to bad water, that malady is endemic. The military death rate from that cause was in 1896 .96 per 1,000, the lowest on record, but those three garrisons alone had 96 deaths, being one-fifth of the total number. The treatment of diphtheria by serum has reduced the mortality from 11.3 per 100 patients to 6 per 100. Scarlatina, measles, and influenza are still frequent, but prompt isolation and thorough disinfection are employed, most of the barracks now having steam stoves for the latter process. Lastly, tuberculosis is the cause of one-fifth of the total mortality, but under a law of April, 1898, soldiers pre-

senting symptoms of the disease will be sent back to their homes till on recovery they can return to the ranks.

MORTALITY STATISTICS OF THE PRISONS DURING THE CIVIL WAR.

Surgeon-General C. M. Tebault, of the United States Confederate Veterans, issued a circular to the survivors of the medical corps of the army and navy of the Confederate States, calling on them to attend the eighth annual reunion of the United Confederate Veterans, at Atlanta, Ga., which met July 20 to 23. In it he said:

"The destruction by fire of the medical and surgical records of the Confederate States, deposited in the surgeon-general's office in Richmond, Va., in April, 1865, renders the roster of the medical corps somewhat imperfect, hence the need of concerted action on the part of the survivors to bridge this hiatus. The official list of the paroled officers and men of the Army of Northern Virginia, surrendered by General R. E. Lee, April 9, 1865, furnished 310 surgeons and assistant surgeons. In the first report, presented at the Richmond reunion, I showed that the medical roster for the Army of Tennessee has been preserved in duplicate. I shall offer in a more detailed report data to prove indisputably important facts relating to the prisoners of war upon both sides, with the purpose of establishing the death-rate responsibility in the premises. It will suffice to mention here that the report of Mr. Stanton, as Secretary of War, on the 19th of July, 1866, exhibits the fact that of the Federal prisoners in Confederate hands during the war only 22,570 died; while of the Confederate prisoners in Federal hands 26,436 died. This report does not set forth the exact number of prisoners held by each side respectively. These facts were given more in detail in a subsequent report by Surgeon-General Barnes, of the United States Army. That the whole number of Federal prisoners captured by the Confederates and held in Southern prisons from first to last during the war was in round numbers 270,000, while the whole number of Confederates captured and held in prisons by the Federals was in like round number only 220,000. From these two reports it appears that with 50,000 more prisoners in Southern stockades or other modes of confinement, the deaths were nearly 4,000 less. According to these figures the percentum of Federal deaths in Southern prisons was under nine; while the percentum of Confederate deaths in Northern prisons was over twelve. These mor-

tuary statistics are of no small weight in determining on which side there was the most neglect, cruelty and inhumanity, proclaiming as they do a loss by death of more than 3 per cent. of Confederates over Federals in prisons, while the Federals had an unstinted command of everything."

AN EMIGRATING YANKEE PRINTER, with a bundle on a cane over his shoulder, halted at the door of a tavern kept by a Dutchman in the village of Chicago, a little more than sixty years ago, and was accosted thus:

"Vell, Misther Valking Sthick, vat you vant?"

"Rest and refreshments," replied the printer.

"Super and lotchin, I reckon?"

"Yes, supper and lodging, if you please."

"Pe ye a Yankee peddler, mit chewelry in your pack, to sheat the gals?" "No, sir, I am no Yankee peddler."

"A singin'-master, too lazy to work?" "No, sir."

"A shenteel shoemaker, vat loves to measure te gals' feet and hankles petter tan to make te shoes?"

"No, sir, or I should have mended my own shoes?"

"A pook achent, vat podders te school committees till they do vat you vish, shoost to get rid of you?"

"Guess again, sir. I am no book agent."

"Te tyfels! a dentist, preaking te people's jaws at a dollar a shnag, and running off mit my daughter?"

"No, sir, I am no tooth-puller."

"Prenologus, ten, feeling te young folks' heads like so much cabbitch?" "No, I am no phrenologist."

"Vell, ten, vat the mischief can you be? Shoost tell, and ye shall have te pest sassage for supper, and shtay all night, free gratis, mitout a cent, and a shill of whiskey to start mit in te morning."

"I am an humble disciple of Faust—a professor of the art that preserves all arts—a typographer at your service." "Votch dat?"

"A printer, sir: a man that prints books and newspapers."

"A man vat printish nooshpapers! oh, yaw! yaw! ay, dat ish it. A man vat printish nooshpapers! Yaw! yaw! Valk up! a man vat printish nooshpapers! I vish I may pe shot if I didn't dink you vas a poor old dishtrict schoolmaster, who verks for notting and poards around—I tought you vas him!"

OBITUARY.

SIR ROBERT RAWLINSON.—A biographical sketch of Sir Robert Rawlinson, recently deceased, in the "Journal of the Sanitary Institute" for July, comprehends the following incident of

Sanitary Service in War Time.

"His services were sought by the Government to remedy the sanitary disasters in the Crimean war. Florence Nightingale, who had gone to Constantinople in October, 1854, with a large detachment of nurses to nurse the wounded and sick soldiers from the Crimea, found the large buildings at Scutari, which were allotted as hospitals, in such a disgraceful condition, that of the sick and wounded about one out of every two who came to the hospital died.

"Miss Nightingale made strong appeals to the home authorities for a sanitary engineer to be sent out to execute the structural works necessary to place the hospitals in a healthy state. Meanwhile, toward the end of 1854, the sickness and mortality among our soldiers encamped before Sebastopol had become truly appalling. On December 23, 'The Times' wrote that 'the noblest army England ever sent from these shores has been sacrificed to the grossest mismanagement,' and 'incompetency, lethargy, aristocratic hauteur, official indifference, favor, routine perverseness and stupidity, reign, revel, and riot in the camp before Sebastopol, in the harbor of Balaklava, in the hospitals of Scutari.' Early in the next year popular indignation drove the Ministry from office, and Lord Palmerston, who became head of the Government, was obliged to adopt prompt and vigorous measures to improve the condition of our troops in the East. Among these was the sending of a Sanitary Commission, composed of Dr. Sutherland, Dr. H. Gavin and Mr. Rawlinson. For once the solemn bonds of red tape and precedent were pushed aside, and not only were the commissioners instructed to use the utmost expedition in examining into the causes of, and finding remedies for, the unhealthy state of the camp and hospital, but were ordered to see, either personally or through their agents, that works considered necessary were immediately begun, and to superintend their progress day by day until they were finished. * * * Here, in Kinglake's words, a few weeks effected 'a change which, if only it had been preceded

by mummery instead of by ventilation and drainage, would have easily passed as a miracle,' and the death-rate fell from nearly 50 per cent. in February to about 2¼ per cent. at the end of June."

DR. R. M. SWEARINGEN, State Health Officer of Texas, after many months suffering from chronic nephritis, died at his residence in Austin, Tex., August 7.. He was born in Mississippi, September 26, 1838, and was a descendant from Dutch ancestors who emigrated to this country from Holland in 1645.

His parents moved to Texas in 1848, and settled in Washington County. He began the study of medicine at about the age of twenty-one, but his course was interrupted by the beginning of the civil war, in 1861. He joined the Southern army as a private in February, 1861, and served continuously until the close of war in 1865.

Immediately after the close of the war, he resumed the study of medicine, attending the New Orleans School of Medicine, and was graduated therefrom in 1867, and settled at Chappel Hill, in Washington County, Texas. During the same year an epidemic of yellow fever swept over Southern Texas, and invaded many of the interior towns, and amongst the number Chappel Hill, which afforded Dr. Swearingen his first experience in yellow fever. He moved to Austin in 1875, and continued to reside there during the rest of his life.

In 1881 Dr. Swearingen was appointed State Health Officer by Governor O. M. Roberts, and served continuously in that capacity up to the time of his death, except during the four years of Ross' administration. In 1887, at San Antonio, he was elected president of the State Medical Association.

In 1861, Dr. Swearingen was united in marriage to Miss Jennie Jessee, of Tennessee, who, and one daughter, Mrs. E. B. Robinson, survive him.

But few, if any, of the medical profession of the State more profoundly impressed his own personality upon the minds of the people with whom he came in contact than did Dr. Swearingen. Happily for the many thousands of the advancing generation, with whom he came in contact, this influence was exercised in favor of truth, justice and morality. He was a model citizen, and faithful in the discharge of every duty, both public and private, as he understood it.

His death in the zenith of his mental vigor and usefulness is

not only an irreparable loss to his disconsolate family, but it is also a public calamity.

Resolutions of Respect.—Governor Culberson has received the following copy of resolutions unanimously adopted by the Louisiana Board of Health, August 8th:

"*Resolved,* That it is the sense of the Louisiana State Board of Health that in the death of Dr. R. M. Swearingen, Health Officer of Texas, we recognize the loss of a faithful co-worker in the field of preventive medicine, and that we share with Texas the loss of a faithful and efficient officer, who was always true to the trust reposed in him.

"*Resolved,* That a copy of this resolution be sent by the secretary to his excellency, the Governor of Texas, and to the bereaved family."

NEW STATE HEALTH OFFICER.—The Governor has appointed Dr. W. F. Blount, of Lockhart, State Health Officer, to succeed Dr. R. M. Swearingen, deceased. Dr. Blount has had seven or eight years experience as quarantine officer at Galveston, the most important station on the Texas coast, and has made a good record. He should make a good State Health Officer. Dr. F. E. Daniel has been retained as secretary under Dr. Blount.

At the last meeting of the Texas State Medical Association a resolution was passed appointing Drs. R. H. Harrison, M. M. Smith, Bacon Saunders, J. D. Osborne and S. C. Red to prepare a bill for the creation of a State Board of Health in Texas, with such power of collecting vital statistics, analyzing articles of commerce offered for sale in Texas for the consumption of her citizens, as medicines, food and drink, and for all other duties belonging to a State Board of Health; and that said committee shall be known as "Legislative Committee No. 2," to urge upon the State Legislature the importance of enacting such law for the general welfare of the people of Texas, not only in protecting the public health against preventable or infectious diseases, but also the hurtful effects of articles of medicine and food offered for sale to the public under false or fraudulent claims that should be exposed or condemned.

Correspondents under this head are particularly requested to be as prompt as possible.

ALABAMA.—W. H. Sanders, M. D., State Health Officer, Montgomery.

Mobile, 37,817. Rhett Goode, M. D., Health Officer, reports the mortality for the months of April, May and June respectively, 59, 77 and 83. From zymotic diseases in April and May, 22; in June, 23. Deaths from consumption, 36—24 colored. Deaths from other causes from 1 to 9, excepting marasmus, from which there were 10. Annual death rates, April and May, 16.20; for June, 24.36.

COLORADO.—A. Stedman, M. D., President, Denver; Henry Sewell, M. D., Secretary, Denver.

Denver, 167,000. William P. Munn, M. D., Health Commissioner. Report for July: Total number of deaths, 160. Annual death rate, 11.49. The principal causes of death were: Phthisis (contracted elsewhere, 22), 28; diphtheria, 3. Cases of infectious diseases reported: diphtheria, 8; scarlet fever, 8; typhoid fever, 10.

From a table of 34 of the most important foreign cities, submitted, four only have higher typhoid death rates than Denver. Of these four, two are in Europe—Rome and St. Petersburg—and are cities renowned for their unhealthfulness; the other two—Cairo and Alexandria—are in Egypt, and take their water from the villainously polluted Nile. Of the 34 cities, 11 have rates lower than ten per 100,000 of population, and 22 of them have rates of twenty or less. In a majority of these cities having such low rates the method of "natural sand filtration" is followed in purifying the water.

CONNECTICUT.—Professor William H. Brewer, Ph. D., New Haven, President; Prof. C. S. Lindsley, M. D., Secretary, New Haven.

By Mortality Reports received, there were 1,225 deaths reported during the month of July. This was 241 more than reported in June, and the same as in July last year, and 157 less than the average number of deaths in July for the five years preceding the present. The death rate was 17.1 for the large towns; for the small towns 14.4, and for the whole State 16.4. The deaths from zymotic diseases were 322, being 16.2 per cent. of the total mortality.

DISTRICT OF COLUMBIA, 280,250—88-772 colored. Wm. C. Woodward, M. D., Health Officer, reports the mortality for five weeks ending Sept. 3, 535. Death rates, 15.79 for the white, 28.67 for the colored, and 19.89 for the whole population. Deaths from zymotic diseases, 107; diphtheria, 10; typhoid fever, 27; consumption, 76.

FLORIDA.—Hon. W. B. Henderson, President, Tampa; Joseph Y. Porter, M. D., State Officer, Jacksonville.

Typhoid fever was reported in eight counties, but in na instance was there anything like a general prevalence. Many districts, too—a careful reading of the reports will show—comment upon the lack of the usual types of "Continued" fevers, generally looked for about this time. Altogether, July was an eminently satisfactory month, looked at from a health standpoint, and August is ushered in most promisingly, so far as the general health of the State is concerned.

By the latest reports the State was entirely free from yellow fever.

The work of placing Tampa in a thoroughly sanitary condition is progressing very rapidly now, under the combined efforts of the War Department, the city and State Boards of Health. The War Department is cleaning thoroughly all the old camp sites, and lime is being freely used. The citizens have never been made to realize that it was their duty to keep their premises clean, and the city has been defiled in the matter year after year. But now there's a difference. They find that the State Board of Health is not the city.

ILLINOIS.—L. Adelsberger, M. D., President, Waterloo; J. A. Egan, M. D., Secretary, Springfield.

Chicago, 1,750,000. A. R. Reynolds, M. D., Commissioner, reports: Total deaths from all causes during the month of July, 1898, 1,938; monthly death rate, 1.20; annual death rate, twelve months ended July 31, 1898, per 1,000 of mean population (white, 13.83; colored, 22.95), 13.96.

Deaths from diphtheria, 48; typhoid fever, 55; consumption, 163; other tubercular diseases, 38. Contagious diseases reported during the month: Diphtheria, 112; scarlet fever, 58.

IOWA.—J. I. Gibson, V. S., President, Denison; J. F. Kennedy, M. D., Secretary, Des Moines.

State Board Bulletin reports infectious diseases for July: Diphtheria—Grand Junction; Lincoln township, O'Brien county; Princeton; Washington township, Story county; Rossville; Muscatine; Dubuque; Davenport. Measles—Ottumwa; Dubuque. Scarlet Fever—Rockwell; Elkader; Cedar Rapids; Muscatine.

LOUISIANA.—Edmond Souchong, M. D., President, New Orleans; G. Farrar Patton, M. D., Secretary, New Orleans.

Reports for seven months, January-July:

New Orleans, 275,000—80,000 colored. Total deaths for the seven months, respectively, 534, 504, 554, 494, 633, 585, 504; 3808—1476 colored. Annual death rates: White, 20.4; colored, 30.74; aggregate, 23.20. Deaths from consumption, 501—230 colored.

Baton Rouge, La., Aug. 29.—Governor Foster has appointed the following Board of Health under the new law: Drs. Edmond Souchon, president; Hampden Lewis and Charles A. Gaudet, of Orleans; J. C. Eagan, of Caddo; R. E. Randolph, of Rapides; T. T. Tarleton, of St. Landry, and W. G. Owens, of Iberville.

The new board was made necessary by one of the articles of the new Constitution. Under the old law some members of the board were elected by the City Council and some appointed by the Governor. An ordinance was passed directing the Legislature to enact a law providing for the appointment of a State Board of Health, members of which were to be selected from different portions of the State. The Legislature was also empowered to make provision for parochial and municipal boards of health. The law providing for the formation of these different boards only became operative yesterday, and the Governor promptly announced the State Board as above named.

Dr. Edmond Souchon is at present president of the Board of Health, having been appointed last January to that position. Under the new law he will practically have supreme control of the health affairs of the State, as the full board only meets once every three months, unless called in special session. When the board is not in session the president alone directs the health affairs of the State.

MARYLAND.—John Morris, M. D., President, Baltimore; John S. Fulton, M. D., Secretary, Baltimore.

Baltimore, 506,398—73,344 colored.—G. Hampson Jones, M.D., Health Commissioner, reports for July: The total deaths were 1134—261 colored; annual death rates, white, 26.89; colored, 41.76; aggregate, 24.30. Seventy-three died from infectious diseases, 76 from consumption. Two hundred and seventy cases of infectious diseases were reported, a decrease of 90 compared with the preceding month.

MASSACHUSETTS.—H. P. Walcot, M.D., Chairman, Cambridge; S. W. Abbott, M. D., Secretary, Boston.

Boston, 528,912. Samuel H. Durgin, M. D., Chairman of Board of Health.

During the month of July there were 871 deaths, of which 315 were under five years of age. Annual death rate, 19.76 per 1,000. Deaths from diphtheria, 11; typhoid fever, 10; cerebro-spinal meningitis, 6; consumption, 111. Cases of diphtheria reported, 86; measles, 154; scarlatina, 50; typhoid fever, 31.

MICHIGAN.—Hon. Frank Wells, President, Lansing; Henry B. Baker, M. D., Secretary, Lansing.

The Secretary reports for the month of August, 1898, compared with the preceding month, dysentery, cholera morbus, cholera infantum, typhoid fever, diarrhœa and inflammation of kidney increased in area of prevalence. Compared with the average for August in the 12 years, 1886-1897, consumption, erysipelas, remittent fever, intermittent fever and cholera infantum were less prevalent.

Including reports by regular observers and others, consumption was reported at 190 places; typhoid fever at 125 places; measles at 45 places; scarlet fever at 39 places; diphtheria at 39 places; whooping-cough at 32 places and small-pox at 1 place. Reports from all sources show consumption reported at 10 places more; typhoid fever at 80 places more; measles at 28 places less; scarlet fever at 5 places less; diphtheria at 1 place less; and whooping-cough at 3 places more in the month of August, 1898, than in the preceding month. Small-pox was reported present at the same number of places.

The State Department bulletin reports the total number of deaths registered in Michigan for August 2,454—843 under four years of age. Death rate 12.5 per 1,000. Deaths from consumption, 198; typhoid fever, 57; diphtheria, 23; scarlet fever, 5;

measles, 5; whooping cough, 36; pneumonia, 64; diarrhœal diseases of children, 437; cerebro-spinal meningitis, 40. No epidemics prevailed. Typhoid fever and diarrhœal diseases of children showed the largest amounts of increase over the preceding month.

CONSUMPTION SPREAD THROUGH NON-ENFORCEMENT OF LAW.—The Secretary of the State Board of Health thinks it is about time that health officers and prosecuting attorneys in Michigan were more generally complying with the law which requires their action when physicians and householders do not report dangerous diseases. Consumption is the most dangerous communicable disease in Michigan, and the law is being disregarded, not only in Detroit, but in some other parts of the State.

The following letter, from a prominent physician in the southern part of Michigan, is illustrative of the results of non-enforcement of this law:

"Is there no way by which physicians are compelled to report to the health officer contagious diseases occurring in their practice? I know to my certain knowledge of a young lady at present a victim of pulmonary phthisis, who contracted the same by her parents moving into a house in which a lady had, six months previous, died of consumption. The girl occupied the same room as deceased, which had not been disinfected nor even repapered. The girl was in a debilitated condition and as a result she now has tuberculosis. This is a case about which there is, in my mind, not a vestige of doubt."

MINNESOTA.—Franklin Staples, M. D., President, Winona; H. M. Bracken, M. D., Secretary, St. Paul.

St. Paul, 215,582. A. J. Stone, M. D., LL.D., Commissioner of Health, reports for the month of July: 150 deaths, representing an annual death rate of 8.34 per 1,000. Deaths under five years of age numbered 70. Deaths from consumption, 25; Cholera infantum, 12.

Minneapolis, 225,600. A. K. Norton, M. D., Commissioner of Health; Miss Edwina J. Peck, Registrar of Vital Statistics. Report for July: Deaths, 165—55 under five years of age; from zymotic diseases, 33; typhoid fever, 10; phthisis pulmonalis, 24; cholera infantum, 14. Annual death rate, 10.32. Cases of contagious diseases reported during the month: Diphtheria, 13; scarlet fever, 1; measles, 5; typhoid fever, 80.

MISSOURI.—E. L. Standlee, M. D., President, St. Louis; Paul Paquin, M. D., Secretary, St. Louis.

St. Louis, 623,000—36,000 colored. M. C. Starkloff, M. D., Commissioner of Health, reports for July: The annual death rate per 1,000 during the month was 17.17; this being based on a population of 623,000, computed on census figures of 1890 (460,000), at the rate of four per cent. annual increase. During the month there were 892 deaths. From zymotic diseases, 213. Deaths occurring outside the city limits, not included in the monthly statement, 41. Percentage of deaths in eleemosynary and other institutions of a public character to total mortality, 25.9. Percentage of deaths in city institutions to total mortality, 11.82. White population, 587,000; mortality rate per thousand, 16.39. Colored population, 36,000; mortality rate per thousand, 30.00.

Kansas City, 200,000. A. N. Shirk, Health Officer, reports for July: 190 deaths, of which 65 were under five years of age. Deaths from tuberculosis, 14. Annual death rate, 9.05 per 1,000.

NEW JERSEY.—C. F. Brackett, M. D., President, Princeton; Henry Mitchell, M. D., Secretary, Asbury Park.

Newark, 235,000. Health Officer Chandler reports for the four weeks ending Aug. 27: Deaths, 388—206 under five years of age; from diphtheria, 6; consumption, 41; typhoid fever, 4. Annual death rate, 21.77.

Paterson, 111,500. J. L. Leal, M. D., Health Officer, reports for July: Deaths, 186—94 under five years of age. Annual death rate, 16.60. Deaths from diphtheria, 3; consumption, 25; diarrhœal diseases, 43.

NEW YORK.—Daniel Lewis, M. D., President, New York; B. T. Smelzer, M. D., Secretary, Albany.

The Secretary's bulletin for July reports that July is always the month of largest mortality in the year; the present reported mortality is 2,800 in excess of that of the month preceding, and the death rate has risen from 16.00 to 20.60 per 1,000 population annually. This increase is chiefly in deaths from diarrhœal diseases, from which 2,000 more deaths occurred than in June, and in deaths credited to other diseases of the digestive organs. The mortality of early life, upon which these diseases chiefly fall, was double that of June. The relative zymotic mortality is likewise

doubled, but in diseases other than diarrhœal there is no variation. Compared with the month of July of former years, there were 200 deaths more than in that month in 1897, which was an unusually healthy July, and the deaths occurring this month are fewer than the average of the past ten years; the diarrhœal mortality is less even than last year, and the increase has been in deaths from local diseases. The infant mortality (under the age of five years) is 43.0 per cent. of the total, being usually 50.0 in this month; in the Maritime district it was 52.3 per cent., and it is increased from last month only in districts containing the larger cities, three-fourths of these deaths occurring in the metropolis. Diarrhœal diseases caused 20.0 per cent. of the total mortality, these likewise having increased for the most part only in the larger cities, there having occurred in four districts with largest city population 40 deaths per 100,000 population for the month, and in the other four more rural districts but 8 deaths to the same population. It is usually the case in this State that the diarrhœal mortality is felt not in the early summer, but later, in August and September, among the rural population. The zymotic mortality other than diarrhœal is usually at its lowest in July, the only exception being with whooping-cough, which is highest in July and August, and which has thus increased to 176 from 111 deaths last month. Diphtheria caused 159 deaths, or about one-half the normal average for the month, and outside the metropolis there were only 36 deaths from it. Small-pox has occurred, one case in the town of Livonia and four or five in the town of Waverly, possibly traceable to source heretofore reported in the central part of the State; all have the mildness characteristic of other cases reported. Diseases of the digestive and nervous systems are the only local diseases which show seasonal increase. Accidental deaths, of which a few are from heat and lightning stroke, but largely from drowning, are increased. The average temperature for the entire month was 2° below the normal, but in the early part of the month excessively hot weather occurred, the high range of 100° having been noticed, and the average highest temperature was 95°, lowest 48°; there were an unusual number of clear days and but four cloudy; the rainfall was deficient.

New York City, 3,438,899. Michael C. Murphy, President; W. T. Jenkins, M. D., and J. B. Cosby, M. D., Commissioners of Health; Emmons Clark, Secretary; Charles F. Roberts, M. D.,

Sanitary Superintendent; Roger S. Tracy, M. D., Registrar of Records.

Borough of Manhattan, 1,917,550. Frederick H. Dillingham, M. D., Assistant Sanitary Superintendent; Thomas C. Taylor, M. D., Assistant Registrar of Records. Deaths, 3,609—1,944 under five years; death rate, 22.20; deaths from zymotic diseases per 1,000 deaths from all causes, 291.60; from typhoid fever, 19; scarlet fever, 24; diphtheria, 63; acute respiratory diseases, 297; consumption, 356.

Borough of Bronx, 137,035. Eugene Monogan, M. D., Assistant Sanitary Superintendent; Arthur J. O'Leary, M. D., Assistant Registrar of Records. Deaths, 332—164 under five years; death rate, 26.35; from zymotic diseases per 1,000 from all causes, 310.00; from consumption, 67.

Borough of Brooklyn, 1,197,100. Robert A. Black, M. D., Assistant Sanitary Superintendent; Sylvester J. Byrne, M. D., Assistant Registrar of Records. Deaths, 2,441—1,358 under five years; death rate, 24.10; deaths from zymotic diseases per 1,000 from all causes, 320.50; typhoid fever, 14; diphtheria, 43; acute respiratory diseases, 150; consumption, 200.

Borough of Queens, 128,042. Obed L. Lusk, M. D., Assistant Sanitary Superintendent; Frank Wickham, M. D., Assistant Registrar of Records. Deaths, 318—118 under five years; death rate, 30.00; deaths from zymotic diseases per 1,000 from all causes, 300.

Borough of Richmond, 64,927. Geo. C. Hubbard, M. D., Assistant Sanitary Superintendent; P. Walter Wood, M. D., Assistant Registrar of Records. Deaths, 158—70 under five years; death rate, 27.50; from zymotic diseases per 1,000 from all causes, 230.

Total: Deaths, 6,858—3,654 under five years of age; death rate, 23.48; deaths from zymotic diseases per 1,000 from all causes, 300.00; deaths from typhoid fever, 37; scarlet fever, 48; measles, 36; diphtheria, 117; acute respiratory diseases, 486; consumption, 664.

Buffalo, 360,000. Ernest Wende, M. D., Health Commissioner, reports for July: Deaths, 517—256 under five years; death rate, 16.76; from zymotic diseases per 1,000 from all causes, 342.00; diphtheria, 1; typhoid fever, 5; acute respiratory diseases, 46; consumption, 31.

Rochester, 175,000. George W. Goler, M. D., Health Officer. Report for July: Deaths, 203—58 under five years; death rate, 13.65; from zymotic diseases per 1,000 from all causes, 250; acute respiratory diseases, 9; consumption, 26.

Syracuse, 120,000. Report for July: Deaths, 194—78 under five years; death rate, 19.30; from zymotic diseases per 1,000 deaths from all causes, 270; acute lung diseases, 8; consumption, 18.

Albany, 100,000. Report for July: Deaths, 167—60 under five years; death rate, 20.00; from zymotic diseases per 1,000 from all causes, 215.50; typhoid fever, 3; acute lung diseases, 15; consumption, 21.

OHIO.—S. P. Wise, M. D., President, Millersburg; C. O. Probst, M. D., Secretary, Columbus.

The State Board Bulletin for August summarizes cases of infectious diseases reported during the four weeks ending July 30, from 36 places, with an aggregate population of 1,256,033, as follows: Diphtheria, 38 cases, 6 deaths; scarlet fever, 42, 2 deaths; typhoid fever, 74, 16 deaths; whooping-cough, 96, 4 deaths; measles, 133, 1 death.

Cincinnati, 405,000. W. A. R. Tenney, M. D., Health Officer, reports for July: 491 deaths—108 under five years of age. Annual death rate, 14.55. From zymotic diseases, 91; consumption, 61; pneumonia, 20; bronchitis, 15; diphtheria, 3; typhoid fever, 5; whooping-cough, 3.

Cleveland, 370,000. J. L. Hess, M. D., Health Officer, reports for the month of July: Deaths, 517—232 under five years. From diphtheria, 1; typhoid fever, 6; phthisis and tuberculosis, 31. Death rate, 16.76.

PENNSYLVANIA.—Pemberton Dudley, M. D., President, Philadelphia; Benjamin Lee, M. D., Secretary, Philadelphia.

Philadelphia, 1,240,266. Benjamin Lee, M. D., Health Officer, reports for the three weeks ending Aug. 13: Deaths, 1,861. From diphtheria, 24; typhoid fever, 42; consumption, 153.

Pittsburg, 295,000. Report for the five weeks ending Sept. 3: Deaths, 497—242 under five years of age; consumption, 41; typhoid fever, 27; diarrhœal diseases, 76. Death rate, 17.3.

Sixty-five cases of typhoid fever reported during week ending Aug. 27, with 5 deaths. Fourteen new cases were reported Aug. 30.

SOUTH CAROLINA.—Charleston, 65,165—white, 28,870; colored, 36,295. H. B. Horlbeck, M. D., Health Officer, reports for three weeks ending Aug. 20: Deaths, 105—78 colored. Under five years of age, 48. Annual death rate—white, 17; colored, 36.58: 24.

TENNESSEE.—W. J. McMurray, M. D., President, Nashville; J. A. Albright, M. D., Secretary, Somerville.

Memphis, 61,747—30,317 colored. Herbert Jones, M. D., President; Marcus Haas, M. D., Secretary. Report for July: Deaths, 121—70 colored. Annual death rates: White, 19.42; colored, 27.70: 23.50. Deaths from typhoid fever, 5; malarial fever, 9.

UTAH.—Salt Lake City, 70,000. P. S. Keogh, M. D., Health Officer, reports for July: Deaths, 55. Annual death rate per 1,000, 9.5.

WASHINGTON.—John Kee, M. D., D. V. S., President, Tacoma; Elmer E. Heg, M. D., Secretary, North Yakima.

Seattle, 70,000. Clarence A. Smith, M. D., Health Officer and Secretary.

Report for July: Deaths, 59; from diphtheria, 4; typhoid fever, 1; consumption, 3. Annual death rate, 10.11.

WISCONSIN.—Solon Marks, M. D., President, Milwaukee; U. O. B. Wingate, M. D., Secretary, Milwaukee.

Milwaukee, 275,000. F. M. Schulz, M. D., Commissioner of Health, reports for July: Deaths, 248—88 under five years of age. Annual death rate per 1,000, 10.64. Deaths from diphtheria, 3; typhoid fever, 7; whooping-cough, 5; consumption, 25; other tubercular diseases, 11; pneumonia, 10.

CANDIDATES FOR ADMISSION INTO U. S. MARINE HOSPITAL SERVICE.—A board of officers will be convened at Washington, Wednesday, November 9, 1898, for the purpose of examining candidates for admission to the grade of Assistant Surgeon in the U. S. Marine Hospital Service. It is desired that applications for this examination be made before November 1st.

Candidates must be between twenty-one and thirty years of age, graduates of a respectable medical college, and must furnish testimonials from responsible persons as to character.

The following is the usual order of the examination: 1, Physical. 2, Written. 3, Oral. 4, Clinical.

In addition to the physical examination candidates are required to certify that they believe themselves free from any ailment which would disqualify for service in any climate.

The examinations are chiefly in writing, and begin with a short autobiography by the candidate. The remainder of the written exercise consists in examination on the various branches of medicine, surgery and hygiene.

The oral examination includes subjects of preliminary education, history, literature and natural sciences.

The clinical examination is conducted at a hospital, and, when practicable, candidates are required to perform surgical operations on the cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur.

Upon appointment the young officers are, as a rule, first assigned to duty at one of the large marine hospitals, as at Boston, New York, New Orleans, Chicago or San Francisco.

After five years service Assistant Surgeons are entitled to examinations for promotions to the grade of Passed Assistant Surgeon.

Promotion to the grade of Surgeon is made according to seniority, and after due examination as vacancies occur in that grade. Assistant Surgeons receive sixteen hundred dollars, Passed Assistant Surgeons two thousand dollars, and Surgeons twenty-five hundred dollars per year. When quarters are not provided, commutation at the rate of thirty, forty or fifty dollars a month, according to grade, is allowed.

All grades above that of Assistant Surgeon receive longevity pay, ten per centum in addition to the regular salary, for every five years service, up to forty percentum after twenty years service. The tenure of office is permanent. Officers travelling under orders are allowed actual expenses. For further information or for invitation to appear before the Board of Examiners, address,

Supervising Surgeon-General,
U. S. Marine Hospital Service.

CONTEMPORARY LITERATURE.

OUR INVALID ARMY.

While the work of transporting the conquered Spanish soldiers back to their native land has been progressing, there has been a simultaneous transfer of the conquering American troops from Santiago to the United States. If the Spaniards had fully realized how seriously the army of General Shafter had been weakened by hardships and disease, it is scarcely probable that General Toral would have surrendered without further resistance. The American people will not be satisfied until they are convinced that every phase of the Santiago campaign has been rigidly investigated, with no political screen for the negligent or the guilty. It is declared that this country—the richest and presumably the most enlightened in the world—despatched an army to the tropical jungles of eastern Cuba at the height of the season of rains and fevers, without medical supplies or any kind of adequate provision whatsoever for the principal dangers that every one knew the army would encounter. To send the army to Santiago without every precaution against the real enemy—namely, the fever fiend—was every whit as absurd as it would have been to send it without ammunition for the rifles. There is not even the excuse that the expedition was gotten off in haste. It took an inordinate time after Cervera's fleet had been bottled up in Santiago harbor by our navy to get General Shafter's army on board the transports and fairly started. Unhappily, there has seemed, even after these matters had been pointed out, very little capacity on the part of the authorities of the army to improve sanitary conditions. Nothing could have been more severe than the physical examination to which the volunteers were subjected when the regiments were formed at the opening of the war. We sent into the various camps something like three hundred thousand young men, every one of whom was in excellent health. It needs no argument to show that the experience of being in camp in the United States in the pleasant months of May, June and July, far from breaking down the health of these young men, ought to have just the opposite effect. The regular life, systematic drilling, and careful attention to personal and camp hy-

giene that were not only feasible, but plainly obligatory, ought to have put our army into a superb physical condition by August or September. That is what would have happened in France or Germany. It is not what has happened in the United States. The camps have been infested with typhoid fever, malaria, and enteric troubles of all sorts, with the alleged result of a shocking average degree of debilitation.—From "The Progress of the World," in the American Monthly Review of Reviews for September.

THE BLAME FOR THE SUFFERINGS.

The discussion as to who is responsible for the lack of medical supplies and surgeons in Cuba goes on with increasing vigor. Secretary Alger lays the fault at the door of the Medical Department, and the department insists that the fault was General Shafter's, while the last mentioned denies all blame. The Medical Department is the most precise in its denial of responsibility and in its evidence in its own behalf, and this counts for something in its favor. Captain and Assistant-Surgeon Edward L. Munson, who was on duty as adjutant to the chief surgeon of the Fifth Corps, has made a report to Surgeon-General Sternberg. He avers that abundance of medical stores were placed on board the transports at Tampa, and when the expedition reached Cuba the landing was made so hastily that the medical supplies were left on board the ships, and that General Shafter himself interfered with a belated attempt to land them, and succeeded in stopping it. When the surgeons reached the shore they found themselves without their field chests, and with "absolutely no resources at hand except such as were provided by the orderly and ship corps pouches and the first-aid packets carried by the soldiers." The half-emptied ships with their supplies had in the meantime put back to sea. The Quartermaster's Department, Surgeon Munson says, refused to aid in any way, and the captains of transport steamers refused to obey the orders of the medical men. The question of responsibility seems to have narrowed down to one between the Medical Department on the one hand, and General Shafter and the Quartermaster's Department on the other. Whoever is guilty ought to be punished, but responsibility in the end must rest on Congress—unbusinesslike, cruelly indifferent Congress; and it is quite likely that no individual and no department of the army will suffer for the heinous wrongs that have been in-

flicted on our soldiers. Probably this reckless, haphazard, headless, lucky campaign affords an illustration of what we are to expect whenever the Republic makes war, and so long as the army is commanded by politicians.—"Harper's Weekly."

THE PHILOSOPHY OF GOOD AND EVIL.

According to the philosophy of life which I have tried to present to you, evil is the absence of goodness, cold as opposed to heat, ignorance as contrasted with knowledge. It is a negative quality, and is to be fought as such—not something to be met and dealt with in itself, but something to me met and dealt with through its opposites. This was the view of Socrates, as it was later of Emerson and many other earnest souls. When carried out in any thoroughgoing way, it changes the whole aspect of things. Evil ceases to be the great central fact of philosophy and religion. Ahriman gives up his eternal conflict with Ormuzd. The dualism of the moral world becomes a strict monism; the once force of religion and morality is seen to be righteouness. The voice of religion directs itself less and less against evil—with only the good listening—and more and more to the realization of good. Morality concerns itself less with the things we must not do, and more with the things we must do. It gives us no longer the chill pictures of renunciation, of Anthony, and Simon Stylites, and the rest, living in caves and standing on pillars and doing other useless and foolish things, but glowing pictures of a positive life, warmed with wholesome human passion, and directed to wholesome human ends.

"Whom man delights in, God delights in, too."

And when this morality becomes touched with emotion, when this passion for the perfect life has mixed with it the sentiment of reverence for that goodly company of men and women who have passed toward the same ideal, has mixed with it a sublime faith in the unseen world, in the eternal things that are yet to be—a faith still more the child of knowledge and insight than of ignorance and superstition—then morality becomes religion and the human heart finds peace.—From "The Philosophy of Manual Training," by Prof. C. H. Henderson, in "Appletons' Popular Science Monthly" for September.

The relations of England and America continue to be much discussed in the English reviews. Two noticeable articles, look-

ing at the question from slightly different points of view, are reprinted in THE LIVING AGE from "The Nineteenth Century." One is by Frederick Greenwood and the other by Sir George Sydenham Clarke.

THE LADRONE ISLANDS.

A perfectly direct line drawn from San Francisco to Manila passes through the Ladrone group. Honolulu lies some distance south of that line. Nevertheless, a direct line from Honolulu to Manila also passes through the Ladrone group. The Ladrones extend from north to south in a row 400 or 500 miles long, and are usually said to comprise about twenty islands. They lie directly north of the Caroline group, which it will also be our duty to claim and protect, and they are perhaps 1,500 miles from Manila and 3,500 from Honolulu. They have a population of only 8,000 or 10,000, the natives being akin to those of the Philippines. They are small islands, but by no means insignificant; for their total area is usually set down as about 1,250 square miles. They are of considerable commercial importance. They have a varied topography, with mountains and valleys and abundant rainfall, and they are extremely productive. Under improved methods of government and agriculture, such as the United States would easily introduce, the already important exports of the Ladrones would be very rapidly increased. They are exceedingly salubrious, and would yield large supplies of products, both of the temperate zone and of the tropics, under American exploitation. A direct cable line to Manila would naturally find a halting-place at San Ignacio de Agana, which is the capital of the islands and is situated on the largest of the group, Guajan, which is of a rounded contour and 30 or 40 miles long.—From "The Progress of the World," in the "American Monthly Review of Reviews" for August.

THE TROPICAL BEAUTY OF PORTO RICO.

Edwin Emerson, Jr., a war correspondent, contributes an article entitled "Alone in Porto Rico" to the September "Century." Mr. Emerson thus describes one of his rides in the interior of the island:

A cool sea-breeze blew from the coast, and stirred up the fragrance of the tropical foliage covering the hills on either side of the road. Bright humming-birds darted about, and from the

woods came the incessant cooing of the mountain dove, the paloma, relieved occasionally by the song of warbling vireos. My heart sang with them as I rode, and I felt altogether too well to worry about the fate hanging over my friend at Ponce, nor did I bother to think of my own uncertain destiny. All round me hirtella-bushes were flowering crimson, and the stately sabino-tree, with its immense white flowers and silvery leaves, perfumed the soft air. It seemed to me as if I had found the loveliest spot on earth.

ST. NICHOLAS for September opens with an article by Tudor Jenks on "The Voyage of the 'Oregon,'" with illustrations by an artist with the fleet. An illustrated article on "The Gun-Foundry at Washington, D. C.," tells how the big guns of the American navy, which have just given such a good account of themselves, are made. In "A Brush with Malay Pirates" George I. Putnam describes a fierce attack by a fleet of proas upon an American bark. And there are, besides, the usual variety of articles of special interest to youth.

HARPER'S MAGAZINE for September is an unusually cosmopolitan number. The timely subject of the outcome of the war with Spain is treated in three important articles: "The Future Policy of the United States," by James Bryce; "The United States in Foreign Military Expeditions," by Professor Albert Bushnell Hart; and "The New Fiscal Policy of the United States," by Worthington C. Ford. England receives attention in Mr. Smalley's second paper on Mr. Gladstone; and in "Social Life in the British Army," illustrated by R. Caton Woodville. "The Romance of a Mad King" is a vivid sketch of the life of King Louis II. of Bavaria; Sidney Whitman, F.R.G.S., writes of "The Turk at Home;" and "Days in the Arctic" are notes from the journal of Frederick G. Jackson. Part I. of "An Angel in a Web," a novel by Julian Ralph, four short stories, including one by Frederic Remington, and the Drawer conclude the number.

THE NORTH AMERICAN REVIEW for September is particularly valuable to all classes of readers. Attention is directed to a noteworthy symposium in its opening pages wherein "The Problem of the Philippines" is discussed by the Rt. Hon. Sir Charles W. Dilke, Bart., M. P.; the Hon. John Barrett, late United States Minister to Siam, and Hugh H. Lusk. "Literature for Chil-

dren" is admirably treated by Richard Burton, and John J. Clancy, M. P., writes most interestingly on "The Latest Reform in Ireland." Burnside Foster, M. D., deals with the subject of "Leprosy and the Hawaiian Annexation;" while a most important article is furnished from the pen of the Rt. Hon. Sir Richard Temple, Bart., G.C.S.I., entitled "An Englo-American *versus* a European Combination." The national query "What Is to Be Done with Cuba?" affords scope for an able paper by Mayo W. Hazeltine, and C. A. Conant in "The Economic Basis of 'Imperialism,'" dwells eloquently but practically on to-day's new outlets for American capital and opportunities for American enterprise. Lovers of science will turn with avidity to the essay by Charles Minor Blackford, Jr., M. D., on "The Exploration of the Sea," wherein the history of thalassography is entertainingly delineated. Space is granted for the second and concluding portion of Emilio Castelar's paper on "Prince von Bismarck," while renewed interest will attach itself to the first part of an article by J. P. Grund, entitled "Bismarck and Motley," and containing correspondence till now unpublished between these famous men. Other topics dealt with are: "Great Teachers," by Prof. T. W. Hunt; "Capture Upon the Sea," by Daniel Chauncey Brewer, and "Cash *versus* Glory," by Edward P. Jackson.

HARPER'S ROUND TABLE for September contains a number of short stories with a war flavor. The opening one, "How the Powder-Boy Gave us Courage," is by Lieutenant-Commander Albion V. Wadhams, U. S. N. Others are, "An Episode of the War of 1870," by H. W. Fischer, and "The Boy is Father to the Man," an interesting account of Admiral Dewey as a boy, by S. A. D. Cox. The issue also contains "A Timely Shot," by Colonel Henry Inman—an incident in the early career of Colonel W. F. Cody, better known as "Buffalo Bill;" "A Gentleman Adventurer," by Reginald Gourlay; "The Latest Explorer of Asia," an account of Dr. Sven Hedin's perilous trip through the deserts of Central Asia, in addition to further instalments of the two serial stories by H. B. Marriott Watson and Kirk Munroe, and the usual short articles, including a description of "The Hindoo Game of Tether-Ball," by Julian Ralph.

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PUBLIC HEALTH ADMINISTRATION IN ENGLAND AND SCOTLAND—POINTS OF CONTRAST AND OF CONTACT.*

The Incorporated Society of Medical Officers of Health to-day meets for the first time in Scotland. The occasion appears to me to afford a fitting opportunity for a review and contrast of the systems of public health administration in operation in England and Scotland. We are accustomed to accept things as they are, without too curious questioning as to how they have come about. It may not be uninteresting, once in a way, to inquire how the present methods of public health administration in England and Scotland have been evolved; to inquire how far they are well founded in the abstract, how far justified in concrete experience; how far the existing systems are natural evolutions, how far their form and direction have been determined by accidental circumstances. Methods differ in England and Scotland—how far have these differences been rendered necessary by the varying circumstances of the case? In what degree are they accidental?

A recent American writer has observed that English local government is a most conglomerate circumstance. "It reminds one," he says, "of the old manor house which the traveller meets from time to time in England—a building which has quite lost its original identity because of the modifications introduced to suit the fancies of succeeding generations. The most violent architectural contrasts strike the eye, for each owner, while adding something

* Address delivered by A. Campbell Munro, M.B., D.Sc., President of the Scottish Branch of the Incorporated Society of Medical Officers of Health, at the Annual Provincial Meeting of the society, held in Edinburgh on 27th July, 1898.

to gratify his own taste, has left intact as much as possible of the earlier work. So with local government: incongruity is the rule. And the queer mingling of the archaic with the modern is explicable here as in the manor house, not on utilitarian, but on historical grounds."

It will be convenient to deal with the subject, generally, under the heads of (1) the central authority, (2) intermediate authorities, and (3) local authorities.

*The Central Authority.**—The time immediately before the Norman Conquest in England was characterized by extreme decentralization in matters of government, and there existed a tolerably complete system of local government. With the Conquest everything was changed. All power became centred in the king, and local government was carried on by his representatives, the sheriffs. Again, in process of years, this system of extreme centralization passed, and gave place to a system of local administration, in which the justices and the church, in their respective spheres, or outside of them, held sway, and this continued more or less into the third decade of the present century. About that time it came to be recognized that the old system was insufficient to deal with the new circumstances which had arisen. The increasing density of the population, with the evolution of industrial enterprises, had introduced new problems, with which the former methods were unable to cope. The failure of the older system of complete decentralization had been most complete in respect of the care of the poor, and the introduction of the Poor Law Amendment Act in 1834 brought about a complete revolution in the department of local administration which was then of most pressing importance—the relief of the poor. The pitiable condition of the laboring classes, and the apparent inadequacy of any other solution, induced the Legislature to place the most absolute powers in the hands of the new Poor Law Board. Little was left to local poor law authorities beyond the election of officers and the distribution of relief in accordance with regulations minutely prescribed by the board. The system of poor law administration then established has been but little modified since.

* In my narrative of the evolution of the central authority in England I have to express my indebtedness to Sir John Simon's classical work on "English Sanitary Institutions."

The appointment of the Poor Law Board paved the way for the introduction of reform in the domain of public health administration, naturally, in a certain sense, accidentally, in that the Secretary to the Board chanced to be Mr. Edwin Chadwick, who had already made an extensive study of social conditions beyond the domain of poor law administration. In 1838 the Poor Law Commissioners, in a letter to the Home Secretary, pointed out that the existing Act required amendment, particularly in respect of making provision for averting the charges on the poor rates caused by "nuisances by which contagion is generated and persons are reduced to destitution. * * * The amount of burdens thus produced is frequently so great as to render it good economy on the part of the administrators of the poor laws to incur the charges for *preventing* the evils, where they are ascribable to physical causes, which there are no other means of removing." The letter was supplemented by reports from the board's medical inspectors, Drs. Neil Arnot, Phillips Kay, and Southwood Smith, based upon inspections of the poorer quarters of London. The inspectors reported, absolutely, that nothing whatever had been done to improve the condition of the districts inhabited by the poor, which suffered from a total want of drainage, from accumulations of putrefying matter of indefinite age, from gross overcrowding. In these pestilential places the poor were obliged to live, in order to be near their work. By no prudence of their own could they avoid the dreadful evils to which they were exposed. Out of a given population, in one year (1838) one-fifth of the whole were attacked by fever, of whom nearly one-tenth died. The public suffered to a far greater extent than they were aware of from this appalling amount of wretchedness, sickness, and mortality. They had to pay not only for the support of the sick, but of families pauperized in consequence of the sickness and deaths of the wage-earners. It appeared that the *prevention* of the evil, rather than the mitigation of the consequences of it, was "not only the most beneficial, but the most economical course."

This letter and these reports inaugurated a new era of social reform. The Commissioners were instructed to extend their inquiry into the causes of disease prevailing among the laboring population in England, Scotland, and Wales. The further report of the Commissioners was presented in 1843. "The principles of amendment deduced from the inquiry," said the report, "will be found as applicable to Scotland as to England."

Another Commission, of which the late Lord Playfair was a member, was appointed in 1843, and reported in 1845, and in 1846 the first public health statute, the Nuisance Removal and Prevention of Epidemic Diseases Act, became law. Under this Act, which was of a temporary character, the Privy Council was constituted the central health authority for England and Scotland. This was superseded by the Public Health Act of 1848, which established a General Board of Health as the central authority for England and Scotland. Of this Mr. Chadwick was the heart and soul. The Act was to continue in operation for a limited period only. When Lord Palmerston moved the renewal Bill authorizing the continuance of the Board, in 1854, a storm of opposition to the Board, which had been gathering for years, burst over the heads of the Government. In vain did Lord Palmerston endeavor to avert it, and to mitigate the opposition. The Bill was defeated, the General Board of Health ceased to be, and a new Public Health Act was passed upon a footing of annual renewability, which creater a new Board, henceforth a Board only in name, with a salaried President, eligible to sit in the House of Commons, who would in himself constitute the board.

The defects of the General Board of Health, and the difficulties of the situation, are now very apparent. The Board had no parliamentary responsibility or check, and thus easily got out of touch with the Legislature. It had no permanent staff of skilled inspectors. It had no medical member, at first, at least; one was added, with a touch of irony, when the administration of the Interments Act was placed in the hands of the Board, "to bury the dead," as some one said. The Board had had, as Lord Palmerston euphemistically put it, "to manage arrangements which conflicted with the fair and legitimate interests of many very intelligent and very active men." In other words, the Board had had to deal with vested interests, hitherto left untouched. The principal fault of the Board was over-eagerness, and in these days neither legislators nor administrators had learnt the happy mean between centralization and decentralization.

The new Board minimized the show of command, and carried out its communications with local authorities chiefly through a number of medical inspectors, of which two were attached to headquarters as "medical superintendents." In 1855 an act was passed empowering the appointment of a medical officer, in which

office Sir John Simon was installed. In 1856 the Board ceased to be the central authority for Scotland. In 1857 it was enacted that the Vice-President of the Privy Council might be the President of the Board. In 1858 the existence of the reconstructed Board of Health terminated, and its more medical duties, with its medical officer, were transferred to the Privy Council. The functions of the medical department of the Privy Council, apart from vaccination and regulations with respect to epidemic disease, were essentially those of inquiry and report. The department was to "inquire into any matters concerning the public health in any place or places."

The Lords in Council promoted and carried the Sanitary Act of 1866. In this statute, as Simon happily puts it, "the grammar of common sanitary legislation acquired the novel virtue of an imperative mood." It declared it to be "the duty" of local authorities to provide for the proper inspection of their districts, and to take proceedings for the suppression of nuisances. On complaint of default of duty, the Secretary of State was empowered to take action to enforce the neglected duty. As time went on, the public looked more and more to the central government to exercise a real supervision over sanitary administration. In 1869 Dr. George Buchanan and Mr. John Netten Radcliffe, from occasional were converted into permanent medical inspectors. The department was authorized to promote laboratory investigations in the branches of science collateral to its province of duty. In 1870 Dr. Thorne was added to the staff, and in 1871 three additional medical inspectors were appointed, with an indication that three more might be added in the following year. The medical department had now liberated itself from the clouds of prejudice and distrust which had gathered around the central authority in earlier times, and the omens appeared to foreshadow a period of still greater usefulness.

A Royal Commission, appointed in 1868 to inquire generally into the system of sanitary administration in operation in England, presented its report in 1871. With respect to the constitution of the central authority, the Commission recommended "that the administration of the laws concerning the public health and the relief of the poor should be presided over by one minister * * * whose title should clearly signify that he has charge of both departments—an arrangement which would probably render neces-

sary the appointment under him of permanent secretaries to represent the respective departments. * * * The new department will have to keep all local authorities and their officers in the active exercise of their own legally imposed and responsible functions."

The Royal Commission further proposed that the central authority should have transferred to it the medical and veterinary departments of the Privy Council, the Local Government Act Office, with its engineering inspectors, the Registrar-General's Office, and all sanitary powers and duties exercised by the Privy Council, the Home Office, and the Board of Trade, and that the several reports, till then prepared disconnectedly in those departments, should be issued by the new department as parts of one series. It further recommended that the office of chief medical officer under the Privy Council should be continued in the new central department. There should be two classes of special inspectors, "some with engineering knowledge," and "some with medical knowledge, who would be the agents of the chief medical officer in the central department, and would bring him into relation with the 4,000 medical officers already attached to the local authorities throughout the kingdom." The recommendations of the Commission fell short of counsels of perfection only in that they did not propose, at once, the establishment of a separate Ministry of Public Health. But the defect was a fatal one.

The Government lacked capacity or courage to propose a thorough measure of consolidation. It contented itself with proposing the creation of a new department, to be styled the Local Government Board, to be invested with the powers and duties of the existing Poor Law Board, certain powers of the Home Secretary relating to local government, and certain powers of the Privy Council relating to public health, but not as to diseases of cattle.

The failure of the Government to establish, at once, a Ministry of Health was misfortune the first. Its failure to consolidate in one central department all matters concerning the public health was misfortune the second. Misfortune the third was that the President of the Poor Law Board, Mr. Stansfield, became head of the new department, and that the poor law department, which he brought with him, became the predominant partner in the new concern. Under Mr. Stansfield the new office started virtually as a continuance of the old poor law office. In relation to the in-

terests of public health, it was as "if the Act had ordered that the old Poor Law Board, subject only to such conditions of consultation and reference as itself might impose upon itself, should be the central sanitary authority for England. * * * The engineering and medical staffs were, as it were, pigeon-holed for reference." Mr. Stansfield provided that the Board might delegate any of its functions to secretaries or *under*-secretaries, and the system of public health administration by under-secretaries, upon the lines of the poor law administration, which was established then, has lasted, with little modification, until the present time. The Board has discharged the functions of a poor law and local government board most excellently; but, looking back over the quarter of a century since the creation of the board, I do not think that it can be pronounced a success as a central health authority. By-laws have been confirmed or disallowed with the precision—and automatism(?)—of clockwork. Its duties of financial and purely administrative control have been admirably discharged. But in the domain of public health administration its policy has, for the most part, been one of masterly inactivity. It has not been a terror to evildoers, or a praise to them that do well. The reports of the cholera survey of 1885-86, carried out twenty years after the passing of the Public Health Act, reveal an almost incredible failure on the part of local authorities over the country to give effect, in their districts, to the most elementary principles of sanitation, and this failure carries with it a distinct reflection on the administration of the central controlling authority.

The Board had at its disposal an imperial subvention, out of which a contribution equal to half the salaries of health officers appointed under the sanction of the Board was made to sanitary authorities. I regard imperial subventions with no great favor. They constitute a sin against sound economic principles. They are frequently frittered away uselessly, and they tend to encourage extravagance on the part of local authorities. The first principle I would lay down with respect to imperial subventions is that they should only be made in respect of matters which are of imperial concern. The second is that the object for which they are bestowed is one the importance of which local authorities are unlikely properly to appreciate. In no case should the grant be made indiscriminately, it should be bestowed only as a reward for efficiency; and, as the subvention comes from the central govern-

ment, the central government should satisfy itself that it is given only for value received. In other words, I believe in "payment by results," using that much contemned phrase in a broad sense. In this power of the purse the Board has had in its hands a lever which might have been used to the immense advantage of the nation. The Board had the power of putting a very real pressure upon sanitary authorities who failed to discharge their most elementary duties. But this power the Board have been too timid to use to any effect, and the subvention has fallen, like the rain from heaven, alike upon the efficient and the inefficient local authority.

It has become a truism in health administration that the larger the administrative unit, within limits, the more efficient the administration. Section 286 of the Public Health Act of 1875 contained the possibilities of an immense reform in the sanitary administration of England. That section provided that the Board could compulsorily establish combinations of districts, exclusive of districts with populations over 25,000, and burghs having separate Courts of quarter sessions. So far as I know that provision has remained a dead letter. It certainly never was utilized to any appreciable extent. It would have been possible for the Board to have applied, in the first instance, the gentle *compulsitor* of withholding the grant in the case of local authorities who declined to enter into efficient combinations. With the knowledge of the stronger power in reserve, rural local authorities would generally have taken the hint. When, however, they proved obdurate, section 286 ought to have been put into operation. Through the *laches* of the Board in this matter, the condition of a large proportion of the rural districts of England remained, what the cholera survey revealed it to be, lamentably defective in respect of sanitary conditions.

The central authority has not, however, entirely failed to move with the times. Dr. Buchanan, medical officer to the board, was in a position, in 1884, to acknowledge "the increased recognition which the board has, during recent years, been pleased to accord to the advice of its medical staff." Amidst the cholera alarm of 1884, the Board appears to have awakened to a consciousness that it had certain supervisatory functions to perform with relation to local sanitary authorities, and a systematic sanitary survey of England was undertaken, which has given an immense impulse to the cause of sanitary reform in the more backward sanitary districts.

But the period of alarm passed, and the survey has never been completed. There is, however, evidence that circumstances have forced upon the Board an increasing recognition of the advice of the medical department, and the Board's administration is becoming more and more embued with the medical and scientific spirit. This, indeed, notwithstanding the original constitution of the Board, was inevitable, for the Board has been exceptionally privileged in its medical department. In its association with the *personnel* of the medical department, it was impossible that the Board should remain a mere piece of automatism.

The central administration of public health affairs in England remains, however, a thing of shreds and patches. What is required is a Ministry of Public Health, detached from any relationship to poor law administration. Under this ministry would be grouped the ordinary public health administration of the country —the Factory and Workshop and the Burial-grounds Departments from the Home Office; the Veterinary Department from the Privy Council; and the Registrar-General's Department—in more intimate relation than it at present has with the Local Government Board. Then there would disappear the unedifying spectacle of two Government departments in hostile conflict, as in the case of the Veterinary Department of the Privy Council and the Medical Department of the Local Government Board. Then, too, there would be hope of the resolution of the chaos existing in the health administration of the Factory Acts, and of a proper definition of the spheres of action of the officers of the central and local authorities. In the codification of the Factory and Workshop Acts which is talked about, the draughtsman of the measure should certainly have in contemplation the detachment of the Factory Inspection Department from the Home Office, and its establishment as a department of the Local Government Board.

The history of the evolution of public health administration in Scotland may be dealt with more summarily.

The earliest public health law appears to have been one in the reign of James I., for the separation of leprous persons from the rest of the people. In the time of James II., Acts to prevent the importation of poisons, and to cause persons affected with the pestilence to be either confined to their own houses or removed to the vicinity of towns, were passed. Under James VI., an Act was passed for protecting the purity of the water in "lochs and burns."

A statute of the time of Queen Anne regulated the application of quarantine in England and Scotland.

The history of the central authority in Scotland up till 1856 is embraced in the history of the English central authority—they were one and the same. In 1856 the general Public Health Act was superseded in Scotland by the Nuisance Removal and Health of Towns Act, and the Board of Supervision for the Relief of the Poor, which had been established in 1845, had, in the words of the Board, imposed upon them "certain duties unconnected with the administration of the poor laws in every parish," or, in other words, the Act constituted the Board the central public health authority for Scotland. The duties and powers of the Board in relation to public health were subsequently enlarged and extended under the Public Health Act of 1867.

This Board had a real, and not a mere technical, existence as a Board. Its constituent members were—three Sheriffs-Principal, the Lords Provost of Edinburgh and Glasgow, the Solicitor-General, with three members nominated by the Crown, one of whom received a salary as chairman of the board. Most of routine business, however, was transacted by the chairman and secretary.

The Local Government Act of 1889, the equivalent in Scotland of the 1888 Act in England, left the constitution of the Board of Supervision untouched, and textually, at least, did not affect its powers. It was evident, however, that the new statute was regarded with no great favor by the Board. The Secretary to the Board, in a semi-official manual, speaking of the transference of the administration of the laws relating to public health from the Parochial Board to the County Council and District Committees, significantly remarked—"Whether the change will be for the better remains to be proved, but that it was inevitable can hardly be doubted." This mental attitude of the Board is quite intelligible. While the Local Government Board in England had pursued a policy of masterly inactivity in relation to local authorities, the Scottish Board, inspired by the late Sir John Skelton, had exercised a very real supervision over the doings and defaults of the smaller local authorities. The Board was a strong Board. Its policy in public health affairs, as in matters of poor law administration, was one of centralization. It had a finger in the pie of every parochial local authority in Scotland. Everywhere its influence was stimulating. When repeated remonstrances failed to

stir a laggard authority into action, the Board made no difficulty about applying its powers of coercion. The Secretary to the Board had some justification in observing, at the time of the passing of the Local Government Act, that, "It can hardly be questioned that the sanitary condition of the people, even in rural districts, has vastly improved since the passing of the [Public Health] Act. In the remoter counties this is mainly due to the steady pressure of the Central Board." Under the Local Government Act of 1889 the appointment of county medical officers in Scotland became compulsory, and it was at once apparent that the control which the Board had exercised over rural local authorities would, with the advent of skilled advisers, become much more remote and shadowy. The English Board has declared that it is not within the province of the Board to offer legal opinions. The Scottish Board, when applied to for advice by local authorities, was not slow to advise on legal or any other matters brought before them, and its advice was customarily given in clear and unhesitating terms. As far back as 1867 the principle of security of tenure for sanitary officers had received a certain acceptance in Scotland. The sanitary inspector, save in the case of burghs having a local authority, or having a population of over 10,000, was removable from office only by the Board. And sanitary inspectors over the country knew that, in the execution of their duty, they would be backed up by the Board.

As an illustration of the effective way in which the Board exercised its powers, I may mention that in its later days it had placed at its disposal an annual grant-in-aid of some £15,000 for distribution among local authorities in countries. The Board immediately issued a circular laying down specific conditions without the fulfilment of which county authorities would not qualify for participation in the grant. I regret to have to record that later on a Secretary for Scotland, under local pressure, caused this circular to be withdrawn.

The weakness of the Board of Supervision as a central health authority—a weakness which was becoming increasingly appreciable in its later days—was that it had no medical or scientific staff. Its methods were conceived in the legal spirit, its bias was, if not anti-medical and anti-scientific, at least a-medical and a-scientific. In respect of a slender annual allowance, it had a certain lien upon the services of a very distinguished medical officer. But, as in

the case of the English Board, the medical officer was pigeonholed for reference. And the bias of the Board was reflected in the case of the local authorities. The medical officer had no security of tenure, he had hardly any administrative functions, he received the slenderest of stipends, and he, too, was simply pigeonholed for reference. Despite the Public Health Act of 1897, it will be long before the laicizing influence of the Board of Supervision will have disappeared in Scotland.

The defects in the constitution of the Board had been generally recognized, and the Board was finally dissolved by the Local Government Act of 1894, and reconstructed under the style of The Local Government Board for Scotland. The effect of the Act was to transform the central public authority for Scotland from a semi-independent body into a State department, with the Secretary for Scotland at its head; the Board becoming, through him, like other State departments, directly responsible to Parliament.

There is, indeed, an *imperium in imperio*. The Board, for ordinary purposes of poor law and public health administration, has its seat in Edinburgh, and consists of a chairman, a legal member, and a medical member. But there is a larger Board, of which the Secretary for Scotland is president, the chairman of the Edinburgh Board, vice-president, and of which, in addition to the legal and medical members already referred to, the Under-Secretary for Scotland and the Solicitor-General are members. Continuity and uniformity of action between the Scottish Office in London and the Edinburgh Board is thus secured. A more symmetrical arrangement, or one better designed to meet the requirements of the case, it would be difficult to imagine. Theoretically, the poor law and public health departments should be disjoined; but in a country so small as Scotland a central board of double function is perfectly justifiable on practical grounds, and, with a medical member, there is security that the poor law department will not be permitted to overshadow the public health department.

The new Board has but put on its armor—its career is before it. It starts with the good wishes of all who are interested in public health matters in Scotland.

But while, as a board, its constitution seems to leave nothing to be desired, its equipment as a central public health authority is of the most meagre character. I find from the recent Civil Service Estimates that the expenditure of the English Board, exclusive of

the cost of district audits, and of the inspection of alkali works, amounted to £136,535. I do not think any one will suggest that that expenditure is excessive. Indeed, it is acknowledged that in some departments of work the Board is unduly restricted. The estimated expenditure of the Scottish Board is only £11,698, being a *decrease* of £253 as compared with the year before. I find that, taking the income of the English Board and the populations of the two countries as bases, the Scottish Board ought to have an income of about £19,000. In other words, the Scottish Board is starved to the extent of sixty per cent. I daresay the Scottish Board could get on with less than its due proportion, but it is undoubtedly, at the present time, starved in respect of staffing and office accommodation. There is nothing in connection with the Scottish Board to represent the medical and engineering department of the English Board. When local inquiries of any importance, in relation to public health, are required to be held, the Board has to rely upon casual assistance, an arrangement which adds nothing to the dignity of the Board nor to its efficiency as the supervising authority. As an irreducible minimum, the Board ought to have a couple of engineering and a couple of medical inspectors. The Board ought also to be provided with funds to enable it to employ special expert assistance to carry out these bacteriological and chemical investigations which are so important a function of a central health authority, and which are from time to time urgently demanded by the exigencies of the public service. The impotence of the Board in respect of this matter is pathetic.

Intermediate Authorities.—In England, the Local Government Act of 1888 established County Councils over the country. The original intention was that the bill itself should, in express terms, devolve upon County Councils powers exercised by various State departments. The matter, however, proved to be one of intricacy and difficulty beyond expectation, and the original specific proposals were withdrawn in favor of a general authorization, which took shape in section 10 of the Act, whereby the Local Government Board is empowered at any time, by provisional order, to transfer any of these powers.

Control over the smaller local authorities was rather suggested than bestowed. The County Council was empowered to appoint a medical officer of health, and medical officers of health of all

sanitary districts having populations under 50,000—boroughs with populations over 50,000 were constituted under the Act administrative counties under the designation of "county boroughs"—were required to send copies of their annual reports to the County Council. In this way County Councils were enabled to exercise a certain supervision over the doings of the smaller authorities, although they were able to exert no directly controlling power. They were authorized, however, if it appeared to them, from any of the reports just referred to, that the Public Health Act was not being properly enforced in any district, or that any matter affecting the public health of a district required to be remedied, to make a representation to the Local Government Board.

In order to galvanize into action that inanimate statute, the Rivers Pollution Act, it was provided that the County Council should have power, *in addition to any other authority*, to enforce the provisions of the Act in relation to any streams which passed through or by their county.

The control of the County Councils over the smaller local authorities was most advantageously extended by the Isolation Hospitals Act of 1893. The comparative absence of provision for the isolation of infectious diseases in the rural and smaller urban sanitary districts in England was, perhaps, the most conspicuous flaw in their administration. In Scotland, curiously enough, things were not nearly so bad. Over a considerable part of the country, hospital accommodation had been provided, although not of the highest order of efficiency. The 1893 Act does not apply to boroughs with populations of over 10,000. It is applicable to rural districts, and to boroughs having populations under 10,000, provided they consent, or the County Council obtain an order from the Local Government Board. The Act provides that, on a petition from any local authority having jurisdiction within the county, or from twenty-five ratepayers, in any contributory place, or on a report from the county medical officer, the County Council must, by a special committee, hold a local inquiry, and, if satisfied of the necessity for the provision of such a hospital, may, by order, constitute a hospital district, embracing the districts of one or more local authorities, and may direct the establishment of a hospital, an appeal to the Local Government Board being open. The County Council is empowered to contribute a capital or annual sum, out of the county fund, toward the expenses of hospitals so

established. The County Council is empowered to form a hospital committee, which is to be "a body corporate," capable of acquiring land, etc. The hospital committee may consist in whole or part of members of the County Council, except in cases where the County Council does not contribute to the cost, in which case the committee is to consist of members of the local authorities concerned. But the hospital committee is, in any case, to be subject to the regulation of the County Council. The hospital committee is empowered, in expectation, or in the event, of an outbreak of infectious disease, to acquire or hire "additional buildings, huts, or tents," and it may also establish subsidiary small or cottage hospitals, and may train nurses for attendance on the infectious sick, either in hospital or outside. The Isolation Hospitals Act is a thoroughly workmanlike measure, and is calculated to be of the greatest public service.

The Scottish Local Government Act of 1889 was based generally upon the English Local Government Act, but it was in its essence a measure for the reform of local administration in counties, and was not specially designed, like the English Act, to be a measure of decentralization. Indeed, decentralization was not so urgently called for in Scotland as in England. The central authority had not so evidently failed in respect of the supervision of the smaller local authorities as in England. Furthermore, a comparison of the two measures brings out, I think, certain differences of national temperament.

The Scottish, like the English Act, constitutes the County Council an authority for the purposes of the Rivers Pollution Act. It provides for the appointment of county medical officers, but, where the English Act says "may," the Scottish Act says "shall." And it gives security of tenure to all public health officers in the country, a matter upon which the English Act is silent. So much for Scottish thoroughness. Independence is supposed to be a national characteristic of Scotland. But nationalities, like individuals, have "the defects of their qualities," and the defects associated with this quality of independence are most unfortunately evinced in this measure. While in England the annual reports of the health officers of all districts having populations under 50,000 are required to be sent to the County Council, and the County Council is empowered to make representations to the Local Government Board as to defects in the public health administration of these

districts, in Scotland the only reference to reports is contained in a section which provides that medical officers for counties and districts of counties shall present annual reports. In other words, reports are to be made with reference to districts for whose sanitary administration the direct supervision of the County Council furnishes a reasonable guarantee of efficiency,* while the small burghal districts, which are under no such supervision, are not required to furnish any reports.

The "independence" of the small burghs was duly conserved. Ancient "centres of civic life," it was remarked on the occasion of the introduction of the measure, cannot lightly be obliterated or merged in the surrounding counties. This is unfortunate. In small local government areas the public interest is a matter little considered in comparison with private interests. There is a lack of a large and well-informed public opinion. A small local authority has small resources; without combination it is unable to obtain the best skill in any department of its work, or to secure the most efficient appliances. The Scottish Act follows the English Act to the extent that the burghs are represented on the County Councils; but such representation is an empty form, as the burghal representatives may not act or vote in respect of any matters involving expenditure to which the burghs do not contribute. The small burghal districts are thus in the position that, while they are admittedly, on the average, behind the rural districts in public health administration, they are, unlike the rural districts, exempt from the supervision of the County Council; unlike the rural districts, their officers are not required to report annually upon the health and sanitary condition of the districts. The consequence is that, while the rural districts have shot ahead since the passing of the Local Government Act, there has been relatively little advance in the smaller burghs. But the independence of these "centres of civic life" has been preserved.

A great opportunity was missed when the Act of 1889 was passed in this emasculated form, and it appears as if the only way in which a tolerably uniform standard of sanitation over the country can be attained, is that which I have already suggested—the provision of a sufficient inspectorate in connection with the Local

* In county districts the local authority is the district committee, composed of the County Councillors for the electoral divisions of the district, with a representative from each Parish Council within the district.

Government Board, to maintain the necessary supervision, and to report cases of neglect and inefficient administration to the central authority.

Local Authorities.—In England the local authority for public health purposes is the town council in boroughs, the urban district council in urban districts, and the rural district councils in rural districts. The Rural District Council is a new body, constituted under the Local Government Act of 1894, and it takes over the duties and powers which were executed, or more frequently neglected, by the former rural local authorities, which were composed of what we in Scotland would term the "landward" members of Board of Guardians. The Rural District councillors are specially chosen by the parish electorate, and are *ex officio* members of the Boards of Guardians for the unions in which their districts are situated. Rural districts had been, in the past, notorious for lax sanitary administration, and the Legislature, in its determination to get rid of the scandal, has so hedged the new rural authority about with checks, that it is difficult to believe that men of capacity or station will be got to sit upon them. The Act virtually assumes that they will prove inefficient, and provides that the Parish Council—a body which has very little work of its own to perform, and may consequently be expected to concern itself a good deal with other people's work—may complain to the County Council that the Rural District Council have failed to provide sewerage or water supply, or to enforce the provisions of the Public Health Act, and the County Council may make an order transferring the powers of the Rural District Committee to itself, or may issue an order limiting a time for the performance of the duty with respect to which complaint is made, and if the duty is not fulfilled within the time so limited, the County Council may appoint a person to perform such duty. Again, when a Rural District Council have determined to adopt plans for the water supply or sewerage of any place within their district, they must give notice thereof to the Parish Council of any parish concerned before entering into any contract for the execution of the works. If the English Act of 1888 has been more fortunate than the Scottish Act of 1889 in its method of dealing with small urban districts, the English Act of 1894 has been distinctly less successful in respect of the rural local authorities which it established.

In Scotland there has been ingeniously wrought out a chain of

continuity from the County Council to the Parish Council. The district committee, which is the rural sanitary authority,* is not directly elected, but is constituted in part of members of the County Council, in part of members of the Parish Council; the proportion of County Councillors being greater in populous districts. By reason of this representation of the County Councils on district committees, these latter bodies stand upon a distinctly higher platform than the Rural District Councils, and they have this further advantage, that when any question affecting the sanitary condition of the district comes up either in the County Council or the Parish Council, the rural local authority is represented. The Scottish system is also more satisfactory than the English, in that the Parish Council in Scotland has no executive functions under the Public Health Act. The Parish Council in England is empowered to utilize any well, spring, or stream within the parish for water supply, so long as they do not interfere with the rights of any corporation or person. They are also empowered to deal with any pool, pond, ditch, drain, or place containing or used for the collection of drainage or other matter prejudicial to health. A Rural District Council may delegate its powers to the Parish Council *quoad* the particular parish which it represents. Surely a case of too many cooks!—"The Sanitary Journal," August, 1898.

THE ENGLISH ROORBACK IN VACCINATION.

It is gratifying to observe that the recent Vaccination Act does not apply to Scotland or Ireland, but is limited to England only, where, it appears, the fallacies of the anti-vaccinists are more prevalent. As explained by the "Sanitary Journal":

"The chief difference between the English and Scotch systems of national vaccination in the past has been that in Scotland the carrying out of the law has almost entirely depended on the parent going to the family medical attendant and getting the child vaccinated. The so-called public vaccinator in Scotland is the medical officer of the Parish Council, and his duties in connection with vaccination refer only to defaulters—that is, to parents who

* The district committee is not entirely the homologue of the Rural District Council, in respect that burghal districts are represented upon it.

have allowed their children to pass the age of six months without being vaccinated. In England, on the other hand, the great part of the work of vaccination—about one-half in London and about two-thirds in the provinces—is done, not by the medical attendant of the family, but by the public vaccinator. The public vaccinator is a medical man who attends weekly at a station, where he operates on all and sundry who come to him. The work of public vaccinators is supervised by the staff of medical inspectors attached to the Local Government Board. A great part of the vaccinal duty of these inspectors consists in seeing that the work done by the public vaccinators reaches a high standard of efficiency. There seems no doubt that, under the English system, the children vaccinated at public stations have a higher average amount of vaccinal protection than have children in Scotland. On the other hand, in Scotland there has been much less objection to vaccination than in England. The annual amount of vaccination default in England is now believed to reach 300,000 in about 920,000 births. In other words, of 100 children born and surviving at the end of the year, less than 70 have been vaccinated. In Scotland the default is less than 3 per cent., so that though the average duration of vaccinal protection may be less than in England, the protection is possessed by a much larger proportion of the children born. We are fain to believe that the small amount of default in Scotland depends partly on the stronger common sense of the people, aided perhaps by better education. Certainly it must depend to some extent on the vaccination being usually done by the family medical attendant, in whom the parents have confidence, so that they are less likely than in England to apply the *post hoc propter hoc* argument with regard to every ailment that may seize a child during the months following its vaccination. Perhaps also some part of the difference may depend on the earlier age at which the operation has been, up till now, performed in England. In Scotland the compulsory age limit is six months; in England it is three months. Obviously many weakly children die between three months and six. The most prejudiced opponent of vaccination can hardly attribute such deaths to vaccination where the dead children are unvaccinated, and the possibility of blame being attached to vaccination in Scotland is *pro tanto* reduced. In England the vaccination age now is to be raised to six months, following the Scotch practice. Also 'domiciliary' vaccination is to be

introduced, apparently under the curious misunderstanding that this, and not the employment of the private practitioner, is the outstanding feature of the Scottish system. In Scotland the child may be vaccinated either at the medical man's house or at his consulting rooms, or at the child's own home. The point rather is that the vaccination is done by the family doctor than that it is done at the child's own home. In supposing, therefore, that the introduction into England of 'domiciliary' vaccination as a substitute for stational vaccination is an adoption of the Scottish system, the Government and Parliament have made a mistake, in so far that the domiciliary vaccination is to be done by public vaccinators. Their course ought to have been to employ and pay for the purpose of vaccination the general practitioners throughout England. It is a fact that in Scotland vaccinations (except in the case of defaulters) are not paid out of the public funds, but privately by the parent of the vaccinated child. Very frequently indeed there is nothing to call payment, as the charge for vaccination is not separated from that for attending the confinement of the mother. In England, however, the system of State payment for vaccinations has already been so thoroughly established that, if full advantage is to be taken of the services of the private practitioner, his certificates must be paid for as are those of the public vaccinators. In failing to provide for this in the recent Act, Parliament has committed a blunder, and the protection of the population against small-pox will suffer.

"The use of calf lymph rendered aseptic by treatment with glycerine or otherwise is to be another feature of the English system, and no doubt in Scotland we will soon have all the benefits of this lymph without any change in the law, as it cannot be supposed that such lymph will not be procurable, at least by purchase.

"An outstanding feature of the new English Act is the granting of a legal status to the individual who has been called, somewhat inappropriately, the 'Conscientious Objector.' His case was pressed so strongly, or at least so loudly, on the attention of Parliament that, in the end, a clause was introduced permitting him to let his children remain unvaccinated. In Scotland there is a difficulty in understanding the possible justification of this policy. Thirty years ago in England there would have been the same difficulty had any such expedient been proposed; but times are changed there as regards the willing acceptance of vaccination by a con-

siderable number of people. Many Boards of Guardians have ceased to apply the present law, and indeed many elections of Guardians have hinged on the question of vaccination, with results too frequently in favor of anti-vaccination, or at least of anti-compulsion. Many Guardians who have the utmost confidence in vaccination have yet come to the conclusion that its enforcement on the children of actively hostile parents would itself be a serious evil. The English law, like the Scotch, has never really been compulsory. It has never ordered that the child be compulsorily vaccinated. In the main it has been a case of the imposition of fines. Of course where fines are unpaid under any law the sale of household goods or even imprisonment may follow. Under the new Act, with its conscience clause, quite possibly many Boards of Guardians which in the past have neglected vaccination will now again take the work in hand. In districts in which, under the present irregular system, the boards have entirely washed their hands of vaccination, it is not only the children of active anti-vaccinationists who remain unprotected against small-pox, but also the children of thousands of parents who have no objection to vaccination, but who, from mere carelessness, or from the subject never being brought under their notice, have allowed their offspring to remain unvaccinated. If the Guardians in such places, having now obtained a conscience clause, actively take up the administration of the new law, then the children whose vaccination has been neglected through mere parental indifference may now undergo the much required operation, and in such communities the annual default should be much less in the future than in the recent past. What the exact result will be no man can tell, but the experiment in England is to be tried for a period of five years only, after which the subject must again come before Parliament."

LOVE all, trust a few,
Do wrong to none; be able for thine Enemy
Rather in power, than use; and keep thy Friend
Under thy own life's key; be checked for Silence,
But never tax'd for Speech.

—*Shakespeare.*

SPEECHES ON VACCINATION.

Of the speeches in Parliament on the recent roorback Vaccination Act, two—perhaps three—are particularly worthy of record. One was the speech of a non-political medical man, Lord Lister; the others were the speeches of a non-medical politician, Lord Salisbury. A bill designed to meet a peculiar agitation naturally divided men's minds acutely. But apart from the special occasion, the speeches we have named deserve selection—Lord Lister's, if only for its matter; Lord Salisbury's, if only for their form.

LORD LISTER.

Lord Lister said that the great majority of members of the House of Commons, and he trusted every member of their lordship's House, was aware of the enormous benefits that vaccination conferred. The only question was, what were the best means under existing circumstances of promoting vaccination in the country? If this amendment passed, the result would not be the passing of this bill without the clause which was objected to—the conscientious clause. The bill inevitably would be sent back to them by the Commons with that clause re-introduced, and the result would be that the bill would be thrown out this session; not only so, but he was given to understand that, if the bill was thrown out this year, it was not likely the Government would introduce another bill next year dealing with the subject, and very probably not the year after, or perhaps for many years to come. Therefore what they had to consider was whether it was better for them to pass this bill as it was sent to them from the Commons, or to be content to allow the subject of the administration of the vaccination law to remain in the position in which it was. After giving the subject the best consideration in his power, his impression was that it would be better to pass the bill as it was sent to them than to have no bill at all. If, after the labors of the Commission and the endeavors of the Government, nothing whatever was done by Parliament in regard to vaccination, he thought that the result would be to cast a slur upon the whole subject. It was not as if the present compulsory system was working well. The truth was the appalling fact that at the present moment about one-third of

the infants that were born in England and Wales were not subjected to vaccination, and it was also true that nearly one-fourth of all the Guardians throughout the country failed to put the vaccination laws into operation. This was a highly unsatisfactory state of things. The anti-vaccinationist had two weapons. One of these was the supposed possible dangers of vaccination, and the other was the martyrdom which it was thought would be endured by persons who would be subjected to fine and imprisonment for disobeying a law which, rightly or wrongly, they honestly believed subjected their children to danger. As regarded the former of these objections, the objection to the supposed danger of vaccination, glycerinated lymph really would remove it. A danger which, though a very rare one, was a possible one, was the risk of giving the terrible contamination of syphilis. This was absolutely done away with by the use of calf lymph. The introduction by means of the lymph of tubercle was quite prevented. There remained the possible danger of communicating erysipelas as an ingredient of the glycerinated calf lymph. The microbes which were the cause of erysipelas were as effectually disposed of by the glycerine as were microbes of tubercle, but there was the possibility of the communication of erysipelas to the incision made in vaccination, just as there was the possibility of communicating erysipelas through any other scratch or sore of any human being. That possibility would be entirely diminished by having children vaccinated at home, as was proposed in this bill, as distinguished from having them crowded in large numbers at the vaccination station. He trusted, however, that before long any possibility of communication of erysipelas and the subsequent contaminations would be done away with. The medical officers of the Local Government Board were now having under consideration what would be the best means—the simplest and most effectual—of using antiseptic measures for the treatment of scratches, and, on the other hand, not interfering with the efficiency of the lymph. In the medical journals gentlemen had shown that they had used antiseptic measures with perfect success with regard to vaccination. If this was accomplished, there would be absolutely no objection to possible danger from vaccinating children. But while this was true, conviction on the subject would take a considerable time to be established throughout the country. There was at the present time a deep-rooted idea, through the propaganda of the anti-vac-

cinationists, that these dangers existed, and it would be a long time before these fears were removed. The other weapon of the anti-vaccinationist—that of the martyrdom of those who were subjected to fine and imprisonment for disobeying the law which they honestly disapproved of—was dealt with by the present bill. It might be said, and had been said, that the conscience clause introduced a new and dangerous principle into their legislation. It might be so. When he saw that such a conscience clause was unanimously recommended by the eminent men who constituted the Commission, including men of the stamp of Lord Herschell, he felt that he might leave that matter aside and consider the matter on its merits. What was likely to be the effect of the bill if passed into law? On this they found the utmost discordance of opinion among medical men themselves. Some felt sure that the result would be an enormous diminution of vaccination throughout the country and the consequent increase of small-pox. Others, men of position in sanitary matters, were equally confident that the bill would greatly increase the amount of vaccination throughout the country. As to which of these opinions was really correct, he confessed he was hardly prepared to express an opinion. Those who hoped good from the bill hoped that, when the conscientious objection had been so amply provided for, the Guardians where vaccination was not now enforced would not object to the prosecution of persons who, from mere idleness without any real objection, failed to have a child vaccinated, or to present a certificate of having made a declaration before the justices. They had had a good illustration on this question from a letter which appeared in the "Times" from Sir W. Foster. The matter was of such importance that he thought it worth reading—"In 1897 the Barton Regis Board of Guardians, in face of the difficulties of enforcing the vaccination laws, adopted, of course, without legal sanction, the recommendations of the Royal Commission. They informed the parents who had not submitted their children to vaccination that they would not proceed against them if a declaration of conscientious objection was made before a magistrate. In the Barton Regis Union in the last half of 1897 there were 2,944 births. The defaulting parents were 350, and the actual number of declarations 130." Major Ramsay, the ex-chairman of the board, wrote that the Barton Regis Guardians were nearly equally divided in opinion upon the vaccination question. A most disturbing ele-

ment in the harmonious working of the board was, however, removed, and had not the statutory declaration been adopted, the whole 350 would have escaped vaccination, in place of the 130 referred to—the remaining 220 having no objection to vaccination, being simply negligent or careless. That seemed to him a most encouraging fact, so far as one could go. This bill did not do away with compulsion, because those who refused to have a child vaccinated had to make a declaration if they wished exemption, and probably they might consider it much less trouble to allow vaccination rather than themselves to go to the trouble of making a declaration. If it turned out that the Guardians refused to do their duty, it would be easy to arrange for a transference of administration of vaccination to the sanitary authorities. He was disposed to be hopeful as to the effect of the bill in its present form. One serious omission in the bill was that it did not deal with revaccination, the immense value of which had been shown by the sylendid results in Germany and its effects in diminishing death from small-pox in the army, the navy, and the police force. The immunity of nurses in small-pox hospitals was also a striking proof of the efficacy of revaccination. The medical profession was bitterly disappointed that revaccination was not dealt with. It was true the Royal Commission felt the difficulty in the way of compulsory revaccination was so great that they were not able to recommend it, and in the present temper of the House of Commons it would be out of the question to try and pass it, but with this conscience clause the difficulty would be greatly diminished. Without it, it would be impossible. Revaccination could be very easily managed in so far as children were concerned, as teachers could keep a record of all children of ten, and the vaccination officers could visit them in their homes. This plan would lead to the vaccination of many who had not previously been vaccinated at all. He should have liked if the bill could have been withdrawn this year and brought in next with this improvement and some other matters attended to. But that was, he feared, a hopeless suggestion. In regard, however, to the question of revaccination, such of Her Majesty's ministers as had been approached gave encouraging reason to hope that a bill dealing with revaccination would be brought in next session. If this was done, it would do untold and incalculable benefit to the community.

LORD SALISBURY (L.).

The Marquis of Salisbury said—The speech of the noble lord contained, as many of the speeches to which we have listened have done, a very earnest vindication of the value of vaccination. I do not think that it is a matter upon which it was necessary for the noble lord to enlarge. There is no difference of opinion in this House on the extreme value of vaccination; the only difference is as to the best means of securing that vaccination shall be carried out. I think the view taken by those who support this clause is indicated very much by the speech of Lord Stanmore, who quoted Indian precedents as bribes to our conduct on this occasion; but I demur altogether from the idea that the action of the Government or Parliament meets with the same response, or can count on the same obedience, in this country as it can in India. We have to deal with the case that, in a large part of the country, there is a profound aversion to the legislation that has been already passed, and to the obligations which have been laid down. Whether that was justified or not we need not examine more carefully, because in this country we have to consider not only the wise and well-weighed objections of the people, but to take into consideration the views of those with whom we cannot altogether agree. Some speakers seemed to imagine that we lived in an ideal state of things in which it was only necessary for Parliament to enact something, and it would be at once listened to—where there were pliant Boards of Guardians, obedient magistrates, and a submissive peasantry, who were only listening for the word of wisdom to be uttered at Westminster in order to throw themselves down before it and obey. That has no correspondence to the existing state of things in this country. In certain circumstances, and in the presence of certain delusions, the action of power does not assist to obedience, but to resistance—it tends to exasperate the feeling which it was its object to overcome. We have to deal with a great delusion, though not a delusion, unfortunately, altogether unfounded. There is in places a well-known belief that vaccination from arm to arm has carried disease from one child to another, and that many deaths are due to what has taken place—to the lack of those precautions which are so wisely insisted upon by the College of Surgeons. I do not say how far these suspicions or these complaints or these apprehensions may be justified. I believe that they are enormously exaggerated; but you have only to read the

report of the Commission to learn that these apprehensions are not destitute altogether of foundation. There is the fear that disease of one child will be carried to another; there is the knowledge that children, and a considerable number, have succumbed to the operation of this process, and the feelings worked upon are the deepest, the tenderest, and most tenacious, and the most difficult to overcome of any in the whole range of human sympathies. That is the state of facts with which you have to deal. It is idle to tell me that the people are wrong, and that they are deceived. As long as they have these feelings they will resist. They are Englishmen. It is easy to quote to me precedents of India and Ceylon to show me the way the objections are to be overcome. The noble lord (Lord Loch) who has just sat down has said with justice that the cause of these apprehensions, and so far as they have happened of these terrible diseases, is now about, under the provisions of this Act, to be removed. We have had explained to us on the greatest authority and with singular clearness and force the mode in which the new process will protect the child from the dangers to which the old process was occasionally liable. The noble lord who has just sat down thinks that proves his case; that you have only to pass your bill, to go on with your coercion. Your process is safe, the dangers are unreasonable, and the superstitions which pervail will immediately disappear.

What Would Happen if the Clause were Rejected.—I think the noble lord has been dealing with countries with executives a little more powerful, if he imagines that the action of the Government can in so short a time dissipate prejudices which have become deep rooted, calm down passions which have been excited to the utmost, and get rid of apprehensions which have fastened themselves upon the tenderest and most forcible of human feelings; if he thinks that, immediately upon the adoption of a new process, and the mere assurance that this process is free from the evils of the old, the resistance with which we have to deal will disappear. My fear is that, if you insist on striking out this clause, if you insist on this bill not passing, the result will be that you will go on with all the exasperation which has been increasing year after year in various parts of the country; every year there will become a greater and more extended struggle between the apprehensions and delusions of the people and the obligations of the law, and you will have no power which you have not now in dealing with them. You

complain now that the law is not respected. It is perfectly true; but supposing you strike out this clause, and the House of Commons puts it in again, as I suppose they will, I presume you will adhere to your opinion, and the bill will fall. That means that you will continue the present law next year, and many years after. What force will that law have? Will it be more respected than at the present time? Up to the present, at least, the law has been merely the subject of agitation and discussion, but now it will go forth to the country as a law condemned by the Commission of unexampled authority, condemned by the Government and the large majority of the House of Commons, which is condemned in its substance in this House, and only survive because the two Houses cannot agree.

Do you imagine that a law in that position will command more respect? Do you imagine that the people who are asked to submit to what they consider greater dangers and hardships will submit more readily because they know it is to a law which depends on sanction such as this? All that you will do is to exasperate feelings which already exist, to increase the chaos and anarchy which pervades the country; you will multiply the number of Guardians who decline now in a truly formidable proportion to enforce the law, and add to the terrible phalanx, already so numerous, upon whom the blessing of vaccination has not been conferred. The course we ask you to take is to note in your legislation that this is a new departure; that you have abandoned the dangerous practice of arm-to-arm vaccination, that you have provided in its place a healthful and safe process on which you can rely, and that you will for five years make, as it were, an armistice with this trouble, and say we will not exasperate passions, we will not renew so dangerous a contest, we will allow the effects of the new law to work their natural course, and we do not propose to hinder that healthy and salutary action by renewing the conflicts and terrors of the past, but we hope in no long time we shall arrive at the only healthy solution of this question, when an overwhelming majority of the people in a body shall recognize the value of vaccination to the community and themselves. That is the ideal course. I venture to say there is no other way of attaining it except by the bill you have before you. If you accept the motion for striking out this clause you condemn us, and submit for an indefinite period to the anarchy and chaos with which we are now confronted.

LORD SALISBURY (II.).

The Marquis of Salisbury—We have heard a great many statistics and estimates which appear to me to have been derived rather from the internal consciousness of the speakers than from any other evidence upon which they can rely. The noble lord who just sat down, and two or three other speakers, have insisted that the country is very strongly on the side of the 40 who voted the other night, and very strongly against the 38. I do not know where that information came from. The House of Commons is apparently here, by common consent, ruled out as a body which knows anything on the subject of the views of the country, and I will not venture, before an audience which might be unfavorable, to plead any title which it may have to that distinction. But, apart from the vote of the House of Commons, we really have no means of ascertaining what the opinion of the country is, but if it is difficult to ascertain what the opinion of the country is, it seems to me to be still more difficult for noble lords to forecast what the result of their action would be if this bill is thrown out this evening. If the amendment is insisted upon, I have very little to add to what I said the other night, and I speak with great hesitation, because I observe that my honorable friend, Lord Faversham, has taxed me with threatening the House of Lords, because I said that the result of the amendment would be to destroy the bill.

Lord Faversham—I never used the word threaten.

The Marquis of Salisbury—At any rate I think he said it was a menace.

Lord Faversham—I never used the word.

The Marquis of Salisbury—I beg the noble lord's pardon. He must have been misreported. I demur very much, however, from being supposed to have said anything which may have had the slightest tinge of a menace about it. It is as absurd to tax me with a menace because I have forecast what is going to happen, as it would be to say that a weather forecast menaces you with rain. If the House of Lords insists upon this amendment, what will the conduct of the House of Commons be? I do not know any other way of judging of the conduct of another assembly than by asking what would be the conduct of this assembly in corresponding circumstances. Suppose you had passed a provision by a majority of 90, and suppose the House of Commons sent it back to you, refused by a majority of 2, do you mean to tell me that the House of

Lords would accept the verdict of the 2 and efface the verdict of the 90? I am quite certain, after long experience in this House, that the House of Lords would do nothing of the kind. Well, but that is the case we have to deal with. If the House of Commons were asked to change their minds—as my honorable friend, with unkind sarcasm, said, change their minds once more again—my impression is that they would ask to see by what majority that demand had been made upon them, and when they found that the majority by which the clause was struck out was only 2, I think they would be very much disposed to adhere to the resolution to which they had come by a majority of 90. That seems to me to be the probability of the case, and I utterly deny that there is any impropriety in forecasting the decision of the House of Commons by such light as we have on the subject. But, of course, if the House of Commons adhere to their vote, it is not a question of discussion or argument, but a matter of fact that the bill falls *ipso facto*. That is a matter of rule. Some noble lords seem to think that directly Parliament meets the Government will be eager again to introduce a Vaccination Bill to the attention of Parliament. I do not venture to make any prophecy on that subject. I have no doubt the Government will do whatever it thinks most advantageous to the public service and likely to promote the progress of public business, but I have observed that, when there is a difference of opinion between the two Houses upon a subject, Governments are anxious to avoid that subject as far as they can, and I doubt very much myself whether there will be any great desire to introduce a subject upon which the House of Commons and the House of Lords appear to be in hopelessly different frames of mind. Therefore the probability of a measure next year, although I do not put it aside altogether, seems to me very faint. Well, if there is not a measure next year, if we have to go on with the law as it is, do you think the law as it is would be a very efficacious instrument? I observe that everybody thinks only of the conscientious objector, and whatever else I praise in the bill I do not praise the person who invented that word conscientious in this connection, because it has absolutely nothing to do with the subject. But the conscientious objector is only in a secondary degree the important question. No doubt on him the penalty falls if he fails to obey the law, and there is no doubt it is that penalty partly which has created the public opinion in a considerable section of people with

which we have to deal. But it is not his objection to have his child vaccinated which is the most formidable manifestation of that opinion. What we really have to deal with is the action of the local authorities, and it is now a matter of experience that one-fourth of the local authorities in the country decline to promote and work this law. Well, you have no power over the local authorities. You cannot say, "Let us vindicate the law, and send them to prison." They are the masters in this matter. You can recast the whole system on which you are working, and allow vaccination to proceed by directions from Whitehall, but apart from all other difficulties attaching to that process, it means an entirely new bill, and a very formidable contest in Parliament, if you leave the matter as it stands. There is no doubt you depend on the feeling of the local authorities, and, so far as we are able to see, the feeling of the local authorities is more and more against carrying out this law, and against that you are powerless. You have not even the gratification of saying that they pretend to be conscientious, and, therefore, you will punish them, because they have not advanced the conscientious plea which offends you so much. They do it by their own will, and there is no appeal from their action. The number of cases where the law is not put into force will grow gradually the more the disrespect in which it is held will increase. The popular respect for vaccination, which you justly desire to disseminate and augment, will become less and less, and you will have presented to yourself all over the country the sight of one local authority after another in which the issue will not be so much vaccination or no vaccination, but an issue running into all kinds of collateral political issues, in which the fact that the law only exists by the will of a majority of 2 in the House of Lords, and has been condemned by a large majority of the House of Commons, will, you may be certain, not be forgotten, but will be constantly insisted upon. My lords, I do not look to the effects of this except in one direction. I ask what effect will it have upon that willing adoption of vaccination which is the only healthy result that you can desire? If you pass this bill now, there is nothing whatever—supposing the difficulties about the conscientious objector turn out to be real—there is nothing whatever to prevent you having another bill to strengthen what may be thought to be too weak in this bill; but, at all events, you will be offering an opportunity to those who say that coercion is a mistake. You will have given experimental trial to those improved processes by

which you hope that the popular delusion may be dissipated, you will have had a truce and armistice, bitterness will have calmed, agitation will have gone down, and you will be able to induce the local authorities to work with you instead of against you in carrying out this great enterprise for the health and the welfare of the people. My lords, I think that the advice which is given to you in all the circumstances—I do not look beyond that—to kill the bill is very unwise advice. I think that for the sake of your own opinion, for the sake of the reform of the law, for the sake of the ultimate achievement of united action upon a matter upon which union and concord are essential, you ought to forego the amendment you only passed by a majority of 2, three nights ago, and allow the bill to pass into law.

AMERICAN PUBLIC HEALTH ASSOCIATION.

TWENTY-SIXTH ANNUAL MEETING.
Ottawa, Can., September 26-30th, 1898.

ABSTRACT OF PROCEEDINGS.

The sessions were held in the Railway Committee room of the House of Commons.

Prof. Charles H. Lindsley, President of the Association, called the meeting to order at 10:30 o'clock, September 26, and introduced Dr. Sweetland, chairman of the committee of arrangements, who announced an excursion to Aylmer for the afternoon, and an evening reception. The report of the executive committee was read. It included thirty-five recommendations of new members. The Association adopted a resolution favoring the appointment of a commission of United States, Canadian and Mexican medical men to endeavor to have the Bertillon system for the classification of diseases adopted in the countries mentioned, and as far as possible to co-operate with European countries that use the Bertillon system.

Sewage Disposal.

The disposal of sewage was the first question taken up. A wide difference of opinion on the subject was exhibited by the papers read. In a memorandum prepared by Dr. R. N. Bucke, of Lon-

don, the utilization of sewage for fertilization as adopted at the asylum at London, Ont., was strongly urged. The sewage is diluted, well mixed, and spread on the land. This yields a remarkable crop of wholesome vegetables and cereals, absolutely free from any taint. Dr. Bucke concluded that this was nature's way of disposing of sewage. His observations were indorsed by Dr. Bryce, the Provincial Medical Health Officer.

Directly opposite was the view expounded by Mr. Thomas Macfarlane, chief analyst of the Inland Revenue Department. Mr. Macfarlane said that diluted sewage has no value as manure. He gave the results of attempts in the Old World to utilize sewage for fertilization. In London, England, 17,000 tons of sludge prepared for fertilization is made daily from the sewage. Anybody who wants it can have it gratis; it finds no customers, however, and is carried fifty miles to sea and there dumped.

A couple of suburbs of London have tried sewage farms, but propose to abandon them so soon as they can get connection with the London sewerage system. Mr. Macfarlane gave particulars of various experiments in the utilization of sewage for fertilization in England and Europe, none of which have proven financial successes.

Filtration through coke was advocated by Mr. C. G. Horetzky; this, he maintained, removed all organic waste. A million gallons of sewage could be strained, he estimated, at an exxpenditure of $5.43 on coke. The coke was then burned and its value as fuel was unimpaired. The subject was further elucidated by a paper on the filtration of sewage by Captain W. F. Vanbuskirk, of Stratford, Ont.

Sanitary Education.

Mrs. Ellen H. Richards, of the Institute of Technology, Boston, Mass., contributed a paper on "The Urgent Need of Sanitary Education in the Public Schools," which was read by Dr. Henry Mitchell, of Asbury Park, N. J. It was most apparent, she said, that the average American citizen has not accepted the teaching of sanitary science as a part of his creed. The remedy for this ignorance is to be found in securing the correct teaching of the elements of public hygiene in the public schools of the country. The first essential for teaching the elements of sanitary science in the public school is a school house in which every principle given is not illustrated by a violation of such teaching. The diseases among American soldiers in the late war were caused, Mrs. Richards claimed, by

culpable ignorance among the officers. Clean school houses, clean streets, and special education cost money, which municipal officers claim it is impossible to get, but the fact should be brought home to the community that the cost of the needless sickness and death among our soldiers would have paid for the cleaning of every school house in the land, and the amount of the pension money would be more than sufficient to keep them clean. Mrs. Richards advocated the appointment of a committee to prepare a primer which should contain the essential principles of preventive medicines, and which could be as universally taught as is first aid to the injured. Good cooking was also a factor in preventing disease. The duty of the healthy man for his own and other's health was just now to see that all school children were taught to prepare and relish the simple, wholesome food which alone could give a sound body.

The Foul Air of Theatres.

Mr. W. Paul Gerhard, Sanitary Engineer of New York, read a paper on this subject, in which he declares that theatres as they at present exist are more foul than street sewers. Their sanitary condition, he affirmed, with some exceptions, was notoriously bad. He advocated the building of theatres so as to admit air and light, and the prohibition of plush seats and carpets in such public places, which tended to retain dust and disease. Mr. Gerhard's paper will appear in full in our next issue.

Infectious Diseases.

Dr. Peter H. Bryce, chairman of the committee on the cause and prevention of infectious diseases, gave an exhaustive report. He said that it must be realized that, as in classifying plants, the infectious diseases fall into several divisions, both as regards their mode of causation and their growth and development. The subjects with which the Association deals to-day, however, were not to any great degree those which troubled them fourteen or twenty years ago. "Excepting perhaps about the mere germ itself, we seem to have learned pretty much about small-pox, for instance; vaccination and compulsory isolation, with effective cleansing, ends the matter, and we set down six weeks of isolation as a finality and move on." The same might largely be said of scarlatina, except that the working physician and municipal health officer now found it very difficult to accept the still accepted rule of English hospital practice of isolation of a minimum 40 days.

"As regards the methods for suppressing outbreaks of diphtheria in a community, further experience in Ontario during the past year has shown that the following seems the most effective and prompt means of stamping out an outbreak. In a number of municipalities where the disease appeared, as it always does, principally among school children, the practice was introduced of a morning visitation by the sanitary inspector to all the public schools to obtain a list of the day's absentees. The homes of these were promptly visited, and where any evidence of malaise and sore throat was present the parents were at once required to send for a family physician, and have a swab taken and forwarded to the medical officer by the afternoon. These were sent at once by mail to the Provincial laboratory, and the patient isolated until an answer by telegraph of the result of the examination was received. Where the case proved to be diphtheria, the patient was isolated until further examination proved the freedom of the throat from bacilli. The children of the household were kept from school and the public, and the home subsequently disinfected with formaldehyde, where the child had not been removed to the hospital."

The report would not, the doctor said, be complete were not some brief reference made to the progress in medical knowledge, both with regard to the inoculation and dissemination, and to the prevention of, tuberculosis. Dr. Hugh Walshan, of London, Eng., had said that he was driven to the conclusion that the inoculation of tuberculosis in the glands of the neck through the tonsils "must be of a comparatively frequent occurrence, especially in children living under unsanitary conditions and subject to various devitalizing influences." Pflugge's experiments regarding the dissemination of dust and germs of disease by air movements in houses go to show "that in those cases where inhalation infection has been successful, sprayed moist sputum has always been used." He concludes that in diphtheria, scarlet fever, consumption, influenza, etc., there is more danger from the infecting agent thrown into the air by the act of coughing than from dust derived from the same material."

The report concluded by a reference to the extreme danger attaching to inmates of the same houses where cases of consumption in advanced stages are resident.

"What constitutes an epidemic?" was the question which Dr. Benjamin Lee, secretary of the State board of health of Pennsylvania and health officer of Philadelphia, sought to answer. He

was humorous at times, and provoked many ripples of amusement. Dr. Lee claimed that if a dozen cases occurred in rapid succession from one case, then an epidemic exists. He refered to the indisposition of communities to admit the existence of epidemics owing to the injury to commerce likely to result. His contention was that the actual number of cases of a contagious disease in proportion to the population as a criterion for the declaration of an epidemic had "nothing to do with the case any more than the flowers that bloom in the spring." He thought that rapidity of spread should be solely considered. "The board of health, which, having knowledge of such conditions, purposely conceals it, or, still worse, denies it, is guilty of a crime of hideous proportions, none the less so because it is acting in obedience to the behests of the business portion of the community or from a mistaken sense of local patriotism."

Typhoid from Impure Water.

In a paper on "An Outbreak of Typhoid Fever due to an Infected Water Supply," Dr. John C. Leal, health officer at Paterson, N. J., dealt with the pollution of water as supplied to the residents of that city. His reason for supporting this particular outbreak was, he said, because it seemed to aid in establishing the fact that the germs originating in a single case of typhoid fever may infect even a large body of water, so as to reproduce itself among those dependent upon the same body of water for their public supply, even though the supply be taken at a point some distance from the point of infection. The cases of typhoid, in the present instance, had developed as follows: During the last half of September, 26 cases; October, 41 cases; November, 108 cases; December, 58 cases. The disease was evenly distributed throughout the city, except in one district containing about 2,000 people, and among all classes of the inhabitants. No possible common means of infection could be found except the public water supply, upon which all of those infected, with the possible exception of two or three, were dependent for at least a portion of the twenty-four hours. The only section of the city which did not contain a single case was not furnished with a public water supply; the water was taken from the Passaic. No evidence was shown above the falls of harmful pollution. Below the falls chemical evidence of harmful pollution was found. After stating the time during which infection existed in the stream, the doctor cited a case of a patient who had returned from a summer resort suffering from typhoid, who practically recovered, but

later was taken with a relapse which lasted about a month before convalescence began. The river had been more or less continuously infected by cesspools from September 1st to November 24th, when the discharge pipe was discovered and further infection from that source prevented.

Other papers read during the first day included one by Mr. F. T. Shutt, on "The Farm Well," another by Mr. A. McGill, and one on the "Interpretation of the Chlorine Matter in Well Water."

The Dominion Welcome.

The formal opening of the convention was held in the council chamber at the city hall in the evening, a large and representative gathering being present. Sheriff Sweetland presided.

Sheriff Sweetland, in his opening address, said that his duties were light, but exceedingly pleasant. The importance of the Association that they were called upon to welcome was not second to that of any organization that had visited the city. Its work appealed to all classes of the people, and was not unfamiliar to them. There was a pleasing coincidence in the fact that two international conferences, affecting the interests of the United States and Canada, were now being held in this country. The Quebec conference was engaged in untangling vexed questions of trade; the convention that he had the honor of welcoming was not of secondary import; indeed, it might be said that it was of first importance. Its ranks were not entirely made up of medical men, but of architects and engineers—those who had to do with sanitary affairs. He hoped the Association in this convention would succeed in laying broad and deep the foundation of public health, just as he trusted the Quebec conference would succeed in effecting many notable trade reforms. (Cheers.)

The Hon. Sydney Fisher, speaking in behalf of the Dominion, said he wanted to congratulate the Association on its long and distinguished career. He was pleased to know that three times had the convention assembled in Canada; it showed that there was a bond of sympathy between the two countries which, ever strong, was becoming increasingly manifest. (Great applause.) He wished to make the welcome in this instance especially strong, because it had come to him that the Canadian delegates were always royally entertained—if that term could be used of the United States—(laughter)—when they appeared at the convention held

across the line. As a layman, it would be out of place for him, he thought, to say anything of a professional or scientific nature. It was a fact worthy of mention, however, that the members of the Association were working in the interests of the public health at large; individual doctors worked for their own clientelle. He had great pleasure in welcoming them to the country.

Mayor Bingham read a lengthy address. As Mayor, he welcomed them to the city. "Ottawa, the capital of our great Dominion, through me, extends to you her hearty greetings of welcome, and openly and gladly confesses that she feels honored by your visit. It is no common occurrence to have assembled together, for such a goodly purpose, so many gentlemen, so well gifted by nature and so thoroughly fortified by learning and research to pronounce upon matters so dear to one's country and to one's home, and so precious to all of God's children; and so we, the citizens of Ottawa, fully realizing the importance of your visit, the good that will flow from it, and the benefit that humanity at large will derive as a result of your united, publicly expressed views, grounded on scientific precepts and filled with the advanced knowledge which you have to date acquired, upon sanitary matters which are of vital importance to country, home and person, unitedly and freely and proudly bid you welcome to Ottawa."

Sir James Grant said that in no department of medicine had so great advances been made as in sanitary science. Ontario, he was glad to announce, had kept in the vanguard. A bureau of public health had been established, and Dr. Bryce, the secretary, was worthy of the highest commendation. Sir James spoke with much warmth upon the efforts that the medical profession had made to induce the Dominion government to establish a health office.

Alderman Black made a short but admirable speech, speaking from the standpoint of the one who had extended the invitation to the Association to come here. "I know the city of Ottawa appreciates the honor of having such a distinguished body of public benefactors in their midst. I know our city is not so imposing, or as extensive as Philadelphia, but from what I know of its citizens I am confident the welcome it extends is as warm and enthusiastic as the reception we received last year in the far-famed city of Brotherly Love. I sincerely trust that nothing may occur to mar the interest, enthusiasm and profit that characterize your annual meetings."

Presidential Address.

President Lindsley followed. He thanked the various speakers for their kindly utterances, and proceeded, following a custom which, he said, had "become imperious by established usage." He thanked the members for the distinguished honor they had conferred upon him in electing him to "the proud eminence of presiding over the largest and most influential body of sanitarians in the world."

The doctor then alluded to the Ottawa session. "Permit me also," he said, "to congratulate the Association in being invited to hold its annual meeting in this beautiful gem of a city, whose natural attractions and wondrous scenic beauties of land and water are so fittingly enhanced by its expansive and elaborate parks; its magnificent illustrations of gothic architecture in its public buildings; and not least in its intelligent attention to public sanitation, as found in its admirable system of drainage and sewerage, its broad and cleanly streets, and its bountiful supply of excellent water. (Applause.)

"It is significant that three times within a dozen years the Association has been welcomed with cordial greetings to hold its meetings on Canadian soil. It is significant of that inseparable bond of sympathy between those of kindred blood, and it is prophetic of the time when the Union Jack of Her Gracious Majesty and the Stars and Stripes of the American Union shall be unfurled together as the emblems of the two great nations of the earth, which stands, each pledged to the other, for the defence of human rights and universal peace." (Great applause.)

(TO BE CONTINUED.)

SOME OF THE EARLY METHODS OF COLLECTING, STORING AND DISTRIBUTING WATER.*

By William R. Hill, C. E.,

Superintendent Syracuse Water Department.

Water is in many respects the most important substance in the world. It covers the greater part of the earth's surface, permeates its interior, and is the substance of the clouds above us. In the early ages it was venerated as a substance of which all things in creation were supposed to be made. Hence wells, fountains and rivers were worshipped and religious feasts and ceremonies were established in honor of them or of the holy spirits that were believed to be hovering over them. The ancient Syracusans held great annual festivals at the fountain of Arethusa and sacrificed black bulls to Pluto at the fountain of Cyane. The ancient Romans celebrated the "Festival of Fontanalia," when wells and fountains were adorned with flowers and wreaths were cast upon the running streams. The early Egyptians worshipped the River Nile as the god of fertility and abundance, and to that deity they made human sacrifices. As late as in the twelfth century the custom of worshipping water was so general that kings and bishops issued regulations strictly forbidding it. Our ancient fathers worshipped water because they knew that it is the world's great natural stimulant and the first necessity of their lives. Without it all vegetation would perish, the earth would be shorn of its beauty and would become one vast burning desert. There would be no clouds in the heavens to protect man from the scorching rays of the sun and his existence would be impossible.

Before attempting to review any of man's work in the art of collecting, storing and distributing water, it would be well humbly to bow to our Creator and acknowledge that all human contrivances are but faint imitations of nature's most wonderful and magnificent machinery. We find nature performing the duties of an im-

* Read at the recent meeting of the Water Works Association, Buffalo, N. Y.

mense hydraulic engine, requiring neither wheels, nor cranks, nor rods, nor pistons, continually converting water into vapor and pumping it into the atmosphere. In the night the dew gently settles over the surface of the earth and gives a sweet and refreshing drink to all the vegetable kingdom. At the dawn of day the sun's rays burst forth and silently and invisibly pump the water in perfect purity up to the distributing reservoirs, the clouds in the heavens, which are grand and beautiful in their formation, presenting the appearance of gigantic mountains crowned with snow, tinted with gold and silver, and emblematic of purity in their whiteness. At other times they present an angry aspect. They cast dark shadows over the earth and seem to be engaged in a great conflict, cannonading each other with electric fire, accompanied by vivid flashes of light followed by the loud report of the discharge of their artillery. The winds distribute them in the heavens, and, affected by the temperature, they fall in the form of rain, hail and snow to refresh the earth, to give drink to man, to give life to vegetation, and to form streams, lakes and rivers, the natural conduits that convey the water to the great storage reservoir, the ocean.

The subterranean boiler's water is heated by Pluto's blue sulphur flames, generating steam and producing power to operate nature's marvelous pumping machinery which discharges water from the bowels of the earth with a pressure sufficient to produce nature's amazing fountains, the geysers.

WATER'S PURIFICATION.

Water is purified by passing through natural filter beds, the subterranean strata of sand and gravel, and leading therefrom we find small service pipes conveying the clear, cold and sparkling water to nature's fonts, the springs. Every tree and every plant is performing the services of a pump, drawing up the water from the ground through their tubes to the top of the highest tree in the forest, even to the end of the smallest blade of grass in the meadow.

In constructing water works, man also imitates his own vascular system. The heart of every human being is a pump, the arteries are force mains, and the veins are suction pipes. At every contraction of the heart the fluid is conveyed through the force mains to the extremities of the system; at every expansion the fluid is drawn to the pump through the suction pipes. The duty of this pump, its strokes per minute, is indicated by the pulsations in the force main. In the vigor of youth, when the machinery is new,

the strokes are strong and regular. When affected by the wear of old age they become weak and irregular, and at last when the pump fails to perform its duty the hydraulic system in man is ruined and, like a piece of worn-out machinery, his days of activity cease forever.

There can be scarcely a doubt that man first employed his skill in the art of procuring water. In the primeval ages he undoubtedly imitated the lower animals, and lying on the ground drank directly from the running streams, and when it became inconvenient to reach the water in that manner, he then used the first vessel, which was the hollow of his hand.

The earliest work was perhaps the construction of wells. These at first were shallow, with steps or inclinations leading down to the water so that it could be reached with the hand. When the wells were made deeper several methods of lifting the water from them were employed, such as in vessels, by cords, chains, poles, pulleys, windlasses, treadmills, capstans and swapes, and by chains of pots, wheels, screws, chain pumps and numerous other devices. In Southern India water was obtained from wells by means of a vessel called a "mot." It was made of an entire ox-hide, bound on a wooden ring to form an opening. It was raised by animal power by a cord on a pulley fixed over the well.

The ancient inhabitants of the island of Aradus (now called Ruad) obtained their water supply from a spring in the bottom of the Mediterranean sea at a depth of about eighty-five feet. The island is about three-quarters of a mile in circumference and is situated about two and one-half miles off the coast of the southern portion of Turkey in Asia. In ancient times it was very populous. The water was obtained by sinking over the spring a wide-mouthed funnel of lead, to which was attached a long pipe of leather. The water was discharged in vessels in boats and conveyed to the city. This spring is known as "Abraham's Fountain." It is located between the island and the mainland. The inhabitants of modern Ruad still tap it in the ancient fashion.

A PIONEER IN WATER WORKS.

Hezekiah, King of Judah, who reigned in the years 717 to 688 B. C., was a pioneer in constructing a system of water works, bringing water into the city of Jerusalem. In the Holy Book we read: "He made the pool and the conduit and brought the water into the city, stopping the upper part of Gihon, and bringing it

straight by an underground way." "He stopped the upper water course of Gihon and brought it straight down to the west side of the City of David, and Hezekiah prospered in all his works." From the "Pools of Solomon," near Bethlehem, water was conveyed to Jerusalem, a distance of six or seven miles, through a conduit of earthen pipe about ten inches in diameter. The pipe was encased within two stones hewn out to fit it, then covered over with rough stones cemented together.

The remains of aqueducts in many parts of the world give evidence that the ancients were well provided with water. The supply was generally discharged into fountains placed in different parts of the cities and then conveyed by the water-carriers to the dwellings or to wherever it was to be used. The aqueducts of the Greeks were open or subterranean channels. They apparently never constructed any aqueduct bridges, hence they left no conspicuous monuments of their works. They were unlike the Romans, who performed work with a disdain to obstacles, building immense structures of masonry to conduct water across deep valleys. Many of the bridges still existing, though in ruins, excite our admiration and astonishment.

In the year 312 B. C. water was for the first time conveyed to Rome from a distance. At that time Appius Claudius the Censor constructed the Aqua Appia aqueduct from the Alban mountains, a distance of eleven miles. The channel was underground the entire distance with the exception of about 100 yards. In the first century, at the time of Emperor Nero, Rome was supplied with water by nine aqueducts, the aggregate length of which was 255 miles, with a capacity of more than 200,000,000 gallons a day. After the construction of other aqueducts the capacity was increased to about 375,000,000 gallons a day. At the time of Constantine there were in Rome 926 public baths, 247 reservoirs and 1,212 public fountains. Many of the fountains were rich in works of art and were of a monumental character, and were dedicated to some god who was supposed to keep the water pure and undefiled.

NOTABLE EARLY AQUEDUCTS.

France had many notable aqueducts. In the first century, in the time of Emperor Claudius, Cæsar, there was constructed a conduit from Mount Pila to Lyons. It crossed thirteen valleys on aqueducts and three valleys by inverted syphons. The first syphon was laid in a valley about 2,600 feet wide and 217 feet deep.

The second in a valley 3,458 feet wide and 325 feet deep. The third was of considerable less importance.

The water was admitted on the upper side of the first syphon into a reservoir of masonry, in the walls of which were inserted, at about ten inches from the floor, nine lead pipes eight and three-quarter inches in diameter and one and one-twelfth inches in thickness. These pipes were carried down the side of the valley on a species of substructure, arched in some places so as to preserve a regular inclination; they were of the same diameter as at the commencement for a distance of eighty-one feet, and they then each divided into two pipes of six inches in diameter. The eighteen smaller pipes were continued to the bottom of the syphon; but instead of descending quite to the lowest part of the valley they were carried across an irregular depression of the latter on an aqueduct of about eighty feet maximum height, so that in fact the descending limb of the syphon was only about 164 feet in vertical height and the ascending limb was about 142 feet. Midway in the ascending limb the two six-inch pipes were reunited into nine-inch ones, and the latter poured the waters they conveyed into a small reservoir corresponding with the one on the descending side. The descending limb of the second syphon was 282 feet.

The famous bridge of Maintenon, which was constructed in the seventeenth century, during the reign of Louis XIV., to convey water to Versailles, is, without doubt, in point of magnitude and height, the most magnificent structure of the kind in the world. The bridge was about 4,400 feet long and more than 200 feet high. It consisted of three tiers of arches, one above the other, of 50-foot spans.

LONDON'S FIRST WATER FROM A DISTANCE.

On the 29th day of September, 1613, water was for the first time conveyed to London from a distance. An open channel about eighteen feet wide and five feet deep was constructed from various springs near Ware and Amwell to the metropolis. Although the distance in a straight line was not more than twenty miles, yet the conduit by its circuitous route was forty miles in length. This length was preferred in order to obtain a fall of three inches per mile throughout its entire course. Later on the channel was shortened to a length of twenty-eight miles. The valleys were in most cases crossed by timber aqueducts, the water ways on which were lined with lead. These timber aqueducts were replaced with embankments about the year 1785.

The canal that supplies the city of Marseilles with water was constructed during the years 1839 to 1847. It is among the boldest undertakings of the kind in Europe in modern days. It has a capacity of 285,000,000 gallons per day. The water is conveyed about sixty miles through forty-five tunnels of an aggregate length of eight and one-half miles, and across many valleys by aqueducts, the largest of which, that over the ravine of the River Arc, is 1,287 feet long and 262 feet high.

In the northwestern part of Arabia there is a well which the Arabs claim to be the work of pre-Islamatic times. It is five feet in diameter at the top and gradually enlarging until it reaches the water at a depth of nearly 200 feet. It is lined with hewn stone throughout. However, the most remarkable well in the world is Joseph's well at Cairo, Egypt. Its shaft was excavated through solid rock to a depth of 165 feet, at which depth it was enlarged on one side to form a chamber, in the bottom of which a reservoir was made immediately under the shaft. At one side of this reservoir another shaft was excavated through rock to a bed of gravel where water was found. The lower shaft was 130 feet deep, making the total depth 295 feet. The upper shaft was rectangular, 24 by 18 feet. The lower shaft was 15 by 9 feet. Winding around the well a spiral passageway 6 feet 4 inches wide by 7 feet 2 inches high was cut with great care from the surface of the ground down to the chamber. Between the well and the passageway a wall of rock was left. Horses and oxen descended the passageway to the chamber, where they propelled machinery to raise the water in pots attached to a chain from the lower shaft to the reservoir in the chamber, whence it was again raised by machinery operated by power on the surface. In the lower shaft a path was cut in its side so that a descent could be made to the water. There was no wall between the path and the well. This work is said to have been constructed by Saladin, who lived in the years 1137 to 1193. Some writers do not mention this and say that the date of the construction is lost in antiquity.

Through small holes bored in the ground water is often raised above the surface by natural hydrostatic pressure. In Europe this mode of obtaining water was first practised in the French province of Artois, anciently called Artesium, hence the name artesian is derived. At Aire, in that province, there is a well from which the water has continued to flow steadily to a height of

eleven feet above the ground for more than a century. There is a flowing artesian well within the old Carthusian convent at Lillers that has been in steady operation since the year 1126. Unmistakable traces of much more ancient bored wells appear in Asia Minor, Persia, China, Egypt, and even in the great desert of Sahara. At Grenello, in the vicinity of Paris, there is an artesian well which is 1,798 feet deep. It discharges water at the rate of about 850,000 gallons a day and at a temperature of 82 degrees Fahr. The boring of this well commenced in the year 1834 and was completed in the year 1841. Previous to the latter date no well had reached a depth of 1,000 feet. The well at Passy, near Paris, is 1,923 feet deep. At its bottom it is two feet and four inches in diameter. It throws a continuous stream of water, at the rate of about 5,500,000 gallons a day, to a height of about fifty feet above the ground. At Bourne, England, there is an artesian well ninety-five feet deep which yields more than 500,000 gallons a day, with a pressure sufficient to supply the town and to force the water to the top of the highest houses.

The older cities of Germany were the first to use pumps to raise water for public purposes. There they were quite commonly used in the year 1550, operated by water wheels. We have no information in detail of their construction. Pumping engines were first used in London in the year 1582. Water was raised from the Thames river to an elevation of 120 feet by sixteen force pumps. The pumps were operated by two undershot water wheels placed under the arches of the London Bridge. The wheels were twenty feet in diameter and were turned by the current during the rise and fall of the tide. When the water flowed rapidly the wheels made six revolutions per minute. The plungers of the pumps were seven inches in diameter and had a stroke of thirty inches, and for every revolution of the wheels they made two and one-fifth strokes. The pumps had a total capacity of 2,500,000 gallons per day. About the year 1757 one of Newcomen's steam engines was erected to raise the water at ebb tide when the water wheels were not in operation. A water company, incorporated in London in the year 1691 to supply water from the Thames river, used a Newcomen's engine, but soon laid it aside and worked their pumps by horses. In earlier days the supply was obtained by the city company of water bearers, who brought water from the adjacent river in leather panniers slung on the backs of horses.

The atmospheric or sucking pump was invented in the year 1641. It was a mystery at that time why the pump would not raise water higher than thirty-two or thirty-three feet. Two years later Torricelli discovered that the water was raised in the barrel of the pump by air pressure on the surface of the water.

MOST COMPLICATED PUMPING MACHINERY.

The most complicated machinery ever constructed for raising water was erected and set in operation at Marli, near Paris, in the year 1682. The pumps were divided into three groups. The first set contained sixty-four sucking and forcing pumps, raising the water 160 feet directly from the Seine river, through an iron pipe, to a cistern 600 feet from the river. The second set, seventy-nine pumps, were placed at this cistern and raised the water 185 feet to a second cistern 1,344 feet from the first. The third set, eighty-two pumps, were placed at the second cistern and raised the water 188 feet in a distance of about 2,000 feet to a reservoir. Therefore, the water was raised 533 feet in a distance of nearly 4,000 feet.

The pumps were operated by water power from the Seine river, which was divided into fourteen distinct water courses, in each of which an undershot wheel was erected. The first set of pumps was operated by six wheels, while the remaining wheels transmitted power to vibrating levers and through these to the piston rods of the second and third set of pumps. Therefore, the upper set of pumps was stationed 345 feet above and 1,944 feet distant from the power that operated them.

The feasibility of raising the water directly from the river to the reservoir was demonstrated by an attempt made in 1738, but owing to the inability of the machine to stand the strain they were operated as before until the year 1775, when a trial was made to dispense with the first cistern, but the pipes burst and the old plan was resorted to until Napoleon ordered a steam engine of sixty-four horse power to replace the water wheels. Consequently these pumps were in use and operated by water power for a period of at least 100 years. The hammering, rattling and creaking noise of the working of this machinery has been described as something hideous. It would be well to note the advancement made in the method of transmitting power in the last 200 years by comparing the operating of these pumps with the noiseless and invisible movement of transmitting power by electricity.

PHILADELPHIA'S FIRST SYSTEM.

The first water works of Philadelphia, Pa., were put into operation January 27, 1801. An engine was placed at the corner of Schuylkill, Front and Chestnut streets. The water was pumped from the Schuylkill river into a brick aqueduct, which was six feet in diameter and 3,144 feet long, leading to the Center square engine house at the crossing of Broad and Market streets. Here another engine pumped the water into two wooden tanks set in the top of a building fifty feet above the bottom of the brick tunnel. The tanks were ten and fourteen feet in diameter and twelve feet deep. The engine could not fill them in less than twenty-five minutes. The pumps were double-acting force pumps. They were made of wood and lined with sheet copper to prevent leakage. The steam cylinder of the Central square engine was cast in two pieces, united by copper. The joint was secured by a cast iron sleeve eighteen inches wide. The cylinder was thirty-six inches in diameter and six feet six inches long. Nearly four months were spent in boring it. The steam boilers were made of five-inch white pine plank. They were boxes nine feet high, nine feet wide and fifteen feet long. They were securely bolted and braced. Inside of each was a wrought iron fire box with vertical cast iron flues. The lever beams, shafts, flywheels, etc., were also made of wood. The water was distributed through the city in pipes of bored logs six inches and four and one-half inches in diameter. Construction of the works commenced in the year 1799.

In contrast with these early contrivances it is interesting to note that there is perhaps no engine in the world which has a capacity equal to that of the pumping engine Michigan, which was built from designs of E. D. Leavitt. It has a capacity of 60,000,000 gallons in twenty-four hours against an average head of fifty-one feet. It is located at the Calumet and Hecla stamp mills, Lake Linden, Michigan. It was constructed and erected by the T. P. Morris Company in the year 1891.

The first person who is known to have raised water by a water ram was Mr. Whitehurst, of Derby, England, in 1772. He conveyed water through a one and a half-inch pipe a distance of about 600 feet with a fall of sixteen feet to furnish water directly to the lower part of a building. When a faucet in the building was opened the water in the pipe was set in motion and as soon as the faucet was closed the momentum of the long column of water

opened the check valve and part of the water, after passing through an air chamber, rushed up a vertical pipe higher than the spring to a tank in the upper part of the building. This effect took place every time the faucet was opened and closed. The self-acting water ram was invented by a Frenchman in the year 1796. By using two or more rams and connecting their ascension tubes into one, water has been raised at Marly, in France, to a height of 187 feet.

EARLY USE OF THE SYPHON.

The origin of the syphon is lost in antiquity. It was, however, used in Egypt as early at least as 1456 years before Christ. In the tomb of Amunoph II., who reigned in that period, there is a delineation which represents the syphon apparently in operation drawing liquid from one vessel to another. A syphon of extraordinary size was built for the Quindaro water supply of Kansas City. It leads from the intake crib to the pump wells, a distance of 745 feet. It is forty-two inches in diameter; its rise is ten feet above low water, and its capacity is about 50,000,000 gallons per day.

A conduit discovered near Patara was formed of stone blocks about three feet square, through which a tube about thirteen inches in diameter was cut. On one end of each block there was a projection which fitted into a recess three inches deep in the face of the adjoining stone, forming a socket and spigot joint which was filled with cement. The blocks were secured together by iron clamps run with lead. The date of the construction of this conduit is lost.

Great and important advances in the science of engineering in the methods of distributing water have been made through the manufacture of pipes. The ancients, so far as we know, made only a limited use of pipe. Although the Romans carried their systems to a high degree of perfection, they preferred brick or stone conduits to lead pipe, which was the only metal conduit they had at their disposal, excepting a bronze pipe which was difficult to manufacture. These lead pipes were made in lengths of ten feet by bending sheet lead upon a cylindrical form and soldering the edges. Thus they were ill-adapted for the conveyance of water under pressure. Earthenware pipes were also used. Some were made to screw into each other. Most of the great houses or palaces were supplied with water which flowed constantly into basins of stone or marble. Water was rarely carried by pipes to the up-

per stories. A lead pipe of great antiquity was recently found under the street in Rome. The pipe was not less than two feet in diameter. It was reinforced in ancient brick masonry.

FIRST CAST IRON WATER PIPE.

A conduit with an inverted syphon of cast iron pipe was constructed in the year 1782 to supply Genoa with water. I have been unable to find any record of cast iron pipe having been used prior to this date. Pipes formed of stone artificially hollowed out were laid down in considerable quantity in London and in Manchester in the early part of the present century. The result in each case was a disastrous failure.

In the early days of London's water supply the distributing mains were made of bored trunks of elm trees, and in most cases they were six or seven inches in diameter. Owing to their small capacity it was necessary in many cases to lay additional lines. In the year 1810 there were nine lines laid side by side in one street. At the end of the last century they commenced to use cast iron pipe. About twenty miles of wooden pipe were removed annually until the year 1820, when all the mains of the New River Water Company, about 400 miles, were replaced by others of iron, of diameters from one to three feet. The cast iron pipes were screwed together at the joints. This prevented their free expansion and contraction, and often caused them to be broken by the varied temperature of the water, rendering them very defective in the winter season. Cylindrical socket joints were then introduced. They were accurately turned in a lathe. No stuffing was used other than a little whiting and tallow. The pipes were driven up in the joints. They were made in lengths of nine feet. The service connections were made by flanged joints cast with the pipe.

Until about the year 1850, or a little later, London and many of the principal cities and towns in England were supplied by the intermittent method, the water being turned on and off in the mains once or twice a day, or once in two or three days, as the case may have been, to fill tanks in the houses. Liverpool had an intermittent supply until the year 1873.

DEVELOPMENT OF SERVICE PIPES.

The first improvement on the ancient method of making lead pipe was in the year 1539 in England. It was then cast in an upright position in short lengths. The lengths were united in a mould by pouring hot metal over the ends until they were run together.

Later on lead pipes were made by casting them in moulds laid in a horizontal position. After a short piece was cast it was almost entirely drawn from the mould. The mould was then refilled with hot metal, which fused with the first piece and increased its length. It was then partly withdrawn and more metal poured, increasing the length as before, and so on until the pipe was made the required length. The present method of making lead pipe was patented in England in the year 1820.

The process of making wrought iron tubes was invented and patented in England in the year 1824. These have been extensively used as service pipes, but in many cases, owing to the nature of the water, they have soon corroded and leaked. In other cases oxidation and incrustations have seriously diminished the capacity of the pipes. Many experiments of coating the pipe have been made from time to time with a view of preventing its deterioration. The most durable and effective coating appears to be a lead lining. The lead lined iron pipe was first made about ten years ago. The method of making it follows: A reamer is run through the iron pipe, making it smooth and true. It is then heated. The outer surface of the lead pipe is covered with a cement and then drawn into the iron pipe, followed by an expander which runs through the pipe its entire length. Wrought iron pipes are lined with tin in the same manner.

The water meter was first patented in England in the year 1825, and in America in the year 1848. Where it is used it restrains a great wastage of water. Many cities have erroneously demanded an unnecessarily large supply of water and have unduly increased their works by building reservoirs, conduits, pumping stations, etc., while, if all their services were metered, they would find that the supply first available would serve a population two and three times as large. The meter is a great economizer. It saves many thousands of dollars in the cost of pumping. It is an honest arbitrator between the supplier and consumer, and it is a better inspector than the most competent man.

In conclusion, it is my hope that this and future generations may enjoy many improvements in the art of collecting, storing and distributing that beverage which is provided by our Creator to cherish and invigorate His creatures and to beautify the world.

THE MEDALS, JETONS AND TOKENS ILLUSTRATIVE OF SANITATION.*

By Dr. H. R. Storer, Newport, R. I.

XI. *Naval and Military Hygiene.—Continued.*

Germany.

Dr. Eduard Schnitzer (1840-1893), of Oppeln. (Emin Pasha.)

Besides Nos. 1857-8 and 2072-3, there are:

2786. Obverse. Military bust to right. Reverse blank. 32.50 mm. R. Ball Cat., Berlin, Nov., 1897, No. 624.

2787. A silver star of the English Emin Pasha Expedition, 1887-9. Weight Cat., Brighton, England.

I am now able to describe the following:

(1606.) Obverse. Two heads, jugate. Beneath: G. Loos Dir. Inscription: Wilhelm Koenig Augusta Koenigin Von Preussen Exergue: A six pointed star. Reverse. Within a heavy wreath of oak leaves, bound above and below by ribbon: Zum | Andenken | An Die | Weihnachts- | Bescheerung | 1870 | Im Vereins | Lazaret | Am | Prenzlauer | Thor Inscription: Den Deutschen Kriegern Von Buergern Berlins Exergue: A six pointed star. Silver. 27.42mm. In my collection.

Prince Ludwig Ferdinand before Mainz.

2788. Obverse. Bust of the prince, to left. Reverse. The prince aiding a wounded soldier. Inscription: Oestreichs Krieger-Dankt Ihm Das Leben Silver. 22.35mm. Helbing Cat., 8 Nov., 1897, No. 1867.

Baden.

2789. Obverse. A Maltese cross. Upon centre, within a circle, the Geneva cross. Upon the arms, a crown -1870-1871- the shield of Baden. Reverse. In centre, F.W.L in ornate monogram, overlaid by a small St. Andrew's cross in red enamel. Gold. 20.20. 30.30mm. Communicated to me by Prof. Oettinger, of New York.

Bavaria.

2790. Obverse. Upon face a Maltese cross with central circle, upon which M within a laurel wreath. Upon arms of cross: Für

*Continued from page 255.

| Die-Jahre | 1813 | Und | 1814 Between arms, rays. Reverse similar, save within wreath a rampant lion, and on arms: Konig | Und-Vater | Land Gilt. 10.15mm. With ring. For Sanitary Corps and other non-combatants. In my collection.

2791. Like No. 1436, but larger size. 25.34. 46.54mm. Only five struck. For civilian surgeons. In my collection.

2792. Obverse. Military bust, to left, with decoration. Beneath: Losch Inscription: Maximilianus Josephus Rex Boioariae Reverse. Within laurel and oak branches, united by ribbon, and touching above: Ob | Milites. | Inter. Praelia | Et. Arte. | Et. Virtute | Servatos. Silver. 26.40mm. With loop. Biedenfeld, IV., 15. In my collection.

2793. Obverse. A Maltese cross. In centre, circular medallion with Geneva cross in red enamel, surrounded by black. Reverse as above, but on medallion a crowned L(udwig), irradiated. Above, 1870; below, 1871; at sides, scroll work. Silver, with gold edges. 9.15mm. Suspended from a gold scroll by blue ribbon. Gritzner, *loc. cit.*, p. 31, figs. 48, 49. Founded for the care of the wounded, by King Ludwig II. Conferred on women as well as men. In my collection.

Hesse, Grandduchy.

2794. Obverse. Within field, L(udwig) III, crowned. Inscription, in German script: Den | 25ten August | 1870 Reverse. An ornate Maltese cross. Inscription, in German script: Für | Pflege Der Soldaten | 1870 Bronze, gilt. 27.43mm. Ribbon gold, between silver stripes. Gritzner, *loc. cit.*, p. 154, figs. 205, 205a; Archer, Orders of Chivalry, p. 63. Founded by Grand Duke L. for distinction by either sex in sanitary affairs, especially in the transportation of wounded or sick soldiers.

2795. As preceding, save that the Maltese cross is upon obverse. Gold. 12.20mm. Edges chased. With ring. In the Government collection and my own.

Oldenburg, Grandduchy.

2796. Obverse. A Maltese cross, with rounded extremities. In centre a medallion, on which the red Geneva cross within wreath of oak leaves. Above, a crowned P. Beneath: 1870-71. Reverse blank. Ribbon blue, with two red stripes, and red edges. Gritzner, *loc. cit.*, p. 310, fig. 370. Founded by the Grand Duke Peter in 1871.

Prussia.

The Order of St. John (Johanniter-Orden).

2797. Obverse. Beneath a gold crown, a white Maltese cross with bi-pointed extremities. Between the arms, the Prussian eagle, in gold. Reverse blank. With black ribbon. *Ibid.*, p. 385, fig. 448.

2798. Obverse. The cross, with black eagles, without the crown. Reverse blank. *Ibid.*, p. 385, fig. 449.

2799. Obverse. The cross alone. Reverse blank. Silver. 13.17. 20.28mm. With ring, and red, white and yellow ribbon. *Ibid.*, p. 386, fig. 450. In the Government collection.

2800. Obverse. Maltese cross of india rubber, with smaller similar cross of white enamel laid over it. Reverse blank. 27.43 mm. With ring. Johanniter cross for aid of soldiers. In the Government collection.

The members of this order are Protestant. Its objects are to care for the sick and wounded, and to build hospitals. Founded by King Friedrich Wilhelm III. in 1812. See also the Malteser-Orden, under Austria.

The Order of Louisa (Luisen-Orden).

2801. Obverse. A Maltese cross, black enamel edged with gold. In centre a medallion bearing L within seven stars. Reverse similar, save on medallion: 1813 -.- 1814 Ribbon white with black edges. For care of wounded by ladies and girls. Founded by King Friedrich Wilhelm III. in 1814. *Ibid.*, p. 393, figs. 455, 455a.

2802. Obverse as preceding. Reverse also, save: 1848 |-.- | 1849 *Ibid.*, p. 394, fig. 456a. Founded by King Friedrich Wilhelm IV. in 1850.

2803. Obverse as preceding, but surmounted by a gold or silver crown (first and second class). Reverse blank. Ribbon with central black stripe in addition to the lateral ones. *Ibid.*, p. 395, fig. 456. Founded by King Wilhelm in 1865.

The Service Cross.

2804. Obverse. A Maltese cross, iron, edged with silver, upon which the Geneva cross, in red enamel, with silver edges. Reverse. In centre: W A (Wilhelm, Augusta) in monogram. Above, a crown; below: 1870 | -.- | 1871 all in silver. Ribbon white, with two black stripes. *Ibid.*, p. 389, figs. 457, 457a. Founded by the Emperor Wilhelm in 1871, upon his seventy-fifth birthday.

The Kronen-Orden.

2805. As No. 1436a, but smaller. Gold, bronze. 16.23mm. With ring. In my collection.

2806. As preceding. 7.12mm. With ring, and black, white and red ribbon. In the Government collection.

2807. As preceding, save on reverse: Den 18 Octob. 1861 5.9mm. In the Government collection.

Alsen, Schleswig-Holstein, 1864.

2808. Obverse. A Maltese cross, whose bars are joined by a laurel wreath. Upon it a medallion, with head of the king, to left. Inscription: Wilhelm Koenig Von Preussen Reverse as above. Within the medallion an empty boat, with flag. Above, flying to left, the crowned eagle, bearing a wreath. Upon the bars of the cross: Alsen | 29.-Jun | 1864 Berlin Iron. 20.31mm. With ring, and parti-colored ribbon. For surgeons and ambulance officers (Johanniter officiere). In my collection.

Düppel, Schleswig-Holstein, 1864.

2809. Obverse as preceding. Reverse also, save on the medallion the crowned eagle, with spread wings, upon a cannon; and upon the bars of the cross: Düppel.| 18-Apr | 1864 Berlin iron. 20.31mm. With loop, and white ribbon with three black stripes. For surgeons and ambulance officers. In my collection.

2810. Obverse. Maltese cross, bearing white enamel Geneva cross. Reverse blank. Berlin iron. 27.43mm. For military surgeons. In the Oettinger collection.

2811. Obverse. Diademed head, to right. Upon neck: C. Schnitzspahn. F. Beneath, at edge: G. Loos Dir. Inscription: Augusta Deutsche Kaiserin Königin von Preussen Reverse. Within a heavy ivy wreath, the Geneva cross, beneath which: Wien 1873 Gold. 27.43mm. I have impressions from Dr. Brettauer, of Trieste.

Saxe-Coburg-Gotha.

2812. Obverse. Diademed head, to left. Inscription: Alexandrina Herzogin V. Sachs. Coburg. Gotha. Reverse. Within laurel wreath: Für Weibliches Verdienst Gold. Ribbon dark green, with double white stripe. Gritzner, *loc. cit.*, p. 463, fig. 518. Founded in 1869. For women and girls aiding in the care of the sick poor.

Wurtemberg.

2813. Obverse. Heads of the King and Queen, to right. Inscription: Karl und Olga König Und Königin Von Wurtemberg Reverse. Within field: Für Verdienste Um Das Rote Kreuz Inscription: Von Der Protektorin Des Würtembergischen Sanitätsvereins Vom Roten Kreuz Gold, silver, bronze. Surmounted

by the red Geneva cross. Ribbon has the colors of that below. *Ibid.*, p. 605, fig. 664. Founded in 1889. Conferred by the queen upon men, women and children for the care of sick and wounded soldiers in the field.

2814. Obverse. Within field K O in monogram, upon a silver medallion. Reverse. Within circle: 1870-1871 Cross of dull silver with trefoil tips, with red Geneva cross superposed. Ribbon black, with broad dark red borders. *Ibid.*, p. 605. The Order of Olga. Founded in 1871.

National.

2815. Obverse. Within central field, upon black enamel: 1870, gold inlaid. Reverse. Similar, but 1871. Gold. Maltese cross. The arms inlaid with black, upon a white ground. 11.17mm. With ring. In my collection.

2816. Obverse. Diademed head, with necklace and veil, to left. Inscription: Augusta - Kaiserin Königin Exergue: a rosette. Reverse. Within beaded circle, the Geneva cross, enclosed by crossed branches of laurel and oak. Inscription: Der Samariterin Auf Dem Throne | + 7 Januar 1890. Silver, bronze. 20.27 mm. Edges beaded; rim milled. In my collection.

Austria.

Baron Dr. Gerard Van Swieten (1700-1772), of Vienna.

2817. Obverse. Bust, to right. Beneath: A Wide(man). 1756. Inscription: Ger. L.B.V.Swieten S.C.R.M.A. Con. Arch. Co. Bib. Pr. Reverse. Beneath a laurel tree Apollo, seated, with open book on knee, and staff of Æsculapius in his left hand. Beside him, his lyre; in front a chemical furnace, and behind him a pedestal with vase, containing an aloe and prickly pear. Legend: Docet Et Sanat Exergue: Med. Vienn | Emend. Silver, bronze. 31.48mm. Van Loon, I, p. 374, pl. XXXI., No. 338; Moehsen, I., p. 1, fig.; Bauer, Neuigkeiten fur Münzliebhaber, p. 354, fig. 5; Rudolphi, p. 152, No. 630; Kluyskens, II., p. 548, No. 1; *Ibid.*, Cat., p. 102, No. 42; Duisburg, p. 181, CCCCLXXXVIII., 1; *Ibid.*, Cat., p. 54, No. 628. In the Government collection and my own.

2818. Obverse. Bust, to right, decorated with the Order of St. Stephen. Beneath: A. Wideman Inscription: Ger. L.B.V.Swieten Ord. S. Step. Com. A. Com. Aul. Arch. Co. Bib. Pr. Reverse. The monument at the Augustinerkirche at Vienna, bearing the bust of Van S. flanked by plants and books, under which his arms crowned and supported by lions, and this epitaph: M. Theresia

Aug | Memoriae | Ger. L.B.V. Swiete(n) | Nat 7 May 1700 | + 18 Jun 1772 Upon top, an urn and two smoking torches; a star, within serpent, above. At sides, nude children, with staff of Æsculapius and branch of plant. Inscription: Ob Doctrinam - Et Integritatem. Gold, silver, gilt, tin. 31.49mm. Thick and thin planchet. Van Loon, II., p. 13, pl. XXXVII., No. 419; Schau- und Denkmünzen Maria Theresia's, II., p. 340, No. 243; Rudolphi, p. 152, No. 631; Kluyskens, II., p. 549, No. 2; *Ibid.*, Cat., p. 102, No. 42a; Duisburg, p. 181, CCCCLXXXVIII., 2; *Ibid.*, Cat., p. 54, No. 629. In the Government and Oettinger collections, and my own.

2819. Obverse. Bust, to left. Below: Van Swieten Reverse blank. Wedgewood. 20.36. 32.56mm. By Flaxman. Communicated to me by Mr. A. H. Lyell, of London.

Pesth Military Hospital.

Besides Nos. 1373-6, there are the following:

2820. Obverse. The crowned double-headed eagle. Upon breast a heart-shaped shield bearing: C(arl). VI. Reverse. Pestiensis Xen: Mon: Mil: Beneath, between palm leaves, a heart-shaped shield, upon which — (the theta has a downward dash at tip, perhaps the sign for the third of a kreuzer (Huntington). 10.16mm. Neumann, No. 167. In the Government collection.

2821. Obverse as preceding. Reverse. Pestien-|sis.| Xeno-dochü | Moneta | Milita | ris. Above, a heart-shaped shield, surmounted by 1, between palm leaves. 12.20mm. Neumann, No. 168. In the Government collection.

2822. Obverse as preceding. Reverse. Within a scroll: 3 Beneath, within laurel branches, inscription as above, save Pestien | sis and Militaris. Neumann, No. 172.

The Hohe-deutsche Ritter-Orden. For the relief of the sick and wounded.

2823. Obverse. A cross, black with gold edged white border. At centre gold shield, with black spread eagle. From this, lilies extend into each arm. Reverse blank. Ribbon black, bordered with gold. Gritzner, *loc. cit.*, p. 296, fig. 353.

2824. Obverse. A similar cross, with broader arms. The eagle crowned, the lilies ornate, and the arms bordered with laurel leaves. Reverse blank. *Ibid.*, p. 296, fig. 354.

2825. Obverse. The cross without eagle or lilies, but surmounted by a helmet tipped with curved feathers, and encircled below by a band with cross. Above, a trophy. Reverse blank. *Ibid.*, p. 297, fig. 355.

2826. As preceding, save without trophy. *Ibid.*, p. 298, fig. 357.

2827. As preceding, save an arm above the cross instead of the helmet. *Ibid.*, p. 297, fig. 358.

2828. Obverse. The cross alone. Reverse blank. *Ibid.*, p. 296, fig. 356.

Founded by the Grand Duke Friedrich of Swabia in 1190, during the Crusades.

The following is a branch of the preceding.

The Marianer Cross.

2829. Obverse. A Latin cross of white enamel, including brown, tipped with gold, and with circular central shield, upon which, on white ground, the Geneva cross, raised, of red enamel tipped with gold. Inscription: Ordo Teut: Humanitati. : . Reverse similar, save without inscription, and on centre of shield, within beaded circle: 1871 Gold. 21.26. 34.42mm. With loop, ring and ribbon, white, barred and striped with brown. *Ibid.*, p. 298, figs. 359, 360, 361. For both men and women, with different arrangements of the ribbon (the Government specimen has black). In the Government and Disbrow collections.

The Order of Malta, or of St. John of Jerusalem (Johanniter-Malteser-Orden).

2830. Obverse. A crowned Maltese cross, with bifurcate arms, and bands, instead of trophy. *Ibid.*, p. 301, fig. 362a.

2831. Obverse. The cross alone. *Ibid.*, p. 301, fig. 363. Confined to Catholics. Founded by Pope Leo XIII. in 1879.

SWITZERLAND.

Boesingen, Canton Friburg, Military Hospital.

2832. Obverse. Head (of Louis XV.), etc. Reverse. The King, in armour, is received by Æsculapius at the hospital, and shown wounded soldiers. In front, an attendant brings them food. Behind, at right, a ward, with bed. At left, a female with cornucopia distributes money. Inscription upon band: Rex Miles Militum Fovet Vulnera. Exergue: An. M.DCCXLIV. Jun. | XXVII. De Vernon, Campagnes de Louis XV., 1788, p. 7, fig.

Foundation of the International Red Cross League.

2833. Obverse. Winged female, with star over head, standing, wreath in right hand, and in left laurel wreath with flag; upon flag, Geneva cross with: Convention | De Geneve In foreground, fasces and a cannon. At sides, wounded sailor and soldier supported by Red Cross assistants. Behind, at left, a disabled vessel.

Ch. I. Richard Inv. & Fecit Geneve, 1897. Reverse. Within beaded circle, above crossed oak and laurel branches, the armorial shield of Geneva, with motto: Post - Tenebras - Lux Beneath: Le XXII Aout MDCCCLXIV | Fut Conclue Et Signée La | Convention De Genève | Pour L'Amélioration Du Sort | Des Militaires Blessés | Dans Les | Armées En Campagne Below, at right: C R Around edge, within circles, the arms of the thirty-two states which originally signed the treaty. Silver. 45.71mm. In the Government collection.

SWEDEN.

Dr. Michael Skjelderup (1769-1852), of Christiania. Military Surgeon.

2834. Obverse. Bust, to left. Upon truncation: Schilling F. Beneath: Loos D. Inscription: Michael Skjelderup Dr. Prof. Med. | (rosette) Octogenarius Instituit An. MDCCCXLIX (rosette) Reverse. Æsculapius with staff, and wreath in right hand. Legend, to left: Conanti. Silver, bronze. 21.33mm. Thick and thin planchets. Koehne, Zeitschrift, VI., 1852, p. 282; Kluyskens, II., p. 451; *Ibid.*, Cat., p. 110, No. 47; Duisburg, p. 215, DLXXII.; *Ibid.*, Cat., p. 63, No. 725. In the Government and Disbrow collections and my own.

2835. Obverse. Secours. Avx. Blessés Militaires (rosette) Reverse. Exposition Et Conferences. Internationelles (rosette) In field: A S.A.R.Le Prince Royal De Svède Et De Norvège. Paris | 1867 Gold. Hildebrand, 1875, II., p. 516, No. 7.

ITALY.

Dr. Carlo Guiseppe Guglielmo Botta (1766-1837), of Turin.

2836. Besides No. 1352, there is a large medal by David d'Angers. Jouin, *loc. cit.*, p. 228, No. 288.

Venice. 1784.

2837. Obverse. The winged lion of Venice, with halo, facing. Inscription: Sanctvs Marcvs Venetvs * Exergue: MCCLXXIV Reverse. (Rosette) | Salvte | Illirio Restitvta | Milit. Benemeren | Ex S. C. | (rosette) | A: Schabel F: Gold. 26.35mm. I have impressions from Dr. Brettauer. Conferred upon the Venetian soldiers who had served as a sanitary cordon against the Plague in Montenegro.

2838. Obverse. Laureated head, to left. Inscription: Napoleon III. Empereur. Reverse. Within wreath: A Mr. Scotti Medn Munice En. Chef. Monza Inscription: Pour. Les. Soins. Donnes. Aux. Blessés. Français. 1859. Silver. 26.40mm. Merchio & Majer Cat., 20 May, 1896, No. 6183.

RUSSIA.

2839. Obverse. In field, the Geneva cross, red enamelled, with rim of gold. Inscription, in Russian, preceded by a star (For care of sick and wounded soldiers). Gritzner, *loc. cit.*, p. 434, fig. 490a. With red ribbon. This is of the first class.

2840. As preceding, but rim of the cross is of silver. *Ibid.*, p. 434. This is of the second class.

2841. As the two preceding, but surmounted by the imperial crown. *Ibid.*, p. 435. The above three were founded in 1878, and conferred upon women and girls for services in the Turkish campaign of 1876-8. The recipients have the right to represent them upon their arms and seals.

ROUMANIA.

2842. Obverse. A duplicated cross (Wiederkreuz), each arm being itself a cross, with medallion in centre, upon which a crowned double E(lizabeth) in monogram (the letters back to back). Reverse. In field of central medallion: 1877-1878 Inscription: Alinare Si Mangare Bronze, gold bordered, with gold relief. Ribbon blue, embroidered with silver. *Ibid.*, p. 410, figs. 471, 471a. For ladies who cared for the sick and wounded.

SERVIA.

2843. Obverse. Between crossed laurel branches, a crowned band with looped extremities, enclosing a large ornate N(atalie). Upon juncture of the band, a Geneva cross. Inscription, in Servian: (For services to the wounded and sick during war 1876-77-78). Gold, silver. *Ibid.*, p. 501, fig. 558. For women who cared for wounded soldiers. Founded in 1866.

JAPAN.

2844. Obverse. A four-armed star, each arm with longitudinal bands. In centre, upon a medallion, the bird "Hoo" hovering with tail erect over the red Geneva cross, between branches of bamboo and Paulownia. Reverse similar. Silver, faced with white enamel. Ribbon red, with two blue stripes. *Ibid.*, p. 199, fig. 253. The star (first class) of the Imperial Society of the Red Cross. Founded in 1887.

2845. As preceding, but without the star. *Ibid.*, p. 199, fig. 254. The medal (second class) of the Society.

Though, as a rule, I have excluded life-saving medals from this enumeration, I have admitted to the present connection those of the Massachusetts Humane Society, Nos. 1236-7. Similarly the following may be mentioned:

2846. Obverse. A raft, with man and two boys. Upon it: W. Wyon. R: A: In distance a hastening boat. No inscription. Reverse. A nude child, to right, endeavors to rekindle a torch with her breath. W. Wyon. R.A. Legend: Lateat Scintillula Forsan. Exergue: Ex Munere Antonii Fothergill M:D: MDCCCX. Gold, bronze. 29.46mm. Storer, *loc. cit.*, April, 1897, No. 1136. In the Weber collection. This is a medal of the Royal Humane Society of London. It is not now given, as the fund is used for the promotion of swimming exercises in public schools selected by the committee. There was a wax model for it, perhaps still in existence, that was made by Pistrucci in 1837, bearing the bust of Dr. Fothergill (Weber, Num. Chronicle, 1894, p. 67, No. 1940). The somewhat similar Stanhope medal is figured in the Society's publications. Gold medals were given by the Society in 1776 to its two founders, Drs. Thomas Cogan (1736-1818) and Wm. Hawes (1738-1808). I have descriptions of them from Mr. A. H. Lyell, of London, but their essential portions are merely engraved.

2847. Obverse. A man in robe (physician) on knees beside a nude person, whose chest he presses with right hand, while with the other he wards off a spear held by a skeleton. At his side an open well, a bottle, lighted pipe, and bellows. At left a man struck by lightning, and in background another hanging to a tree. Legend, upon band: Life Restored Reverse. Within laurel branches tied by ribbon: In Honour | Of The | Original Institution | For Restoring Life | Founded At | Amsterdam | 1767 Inscription: General Institution For Gr. Britain And Ireland, 1773. Van Loon, III., 1869, pl. LXXXVII., No. 900; Storer, *loc. cit.*, Jan., 1897, No. 1106.

CHINA.

Hong Kong, 1894. See under Epidemics, The Plague.

XII. *Climate.*

THE UNITED STATES.

Colorado.

2848. Obverse. Within a circle: Sunny Pueblo The Great Sanitarium *** Climate | Manufacturers | Smelters | Agriculture | Rapid Growth. Reverse. Within a wreath: Presented | By | Central | National | Bank | * | Pueblo Colo. Inscription: Columbian Exposition Souvenir—*1492-1892*— Aluminum. 20.32mm. Wright, The Numismatist, April, 1898, p. 89, No. 159.

AUSTRIA.

Besides No. 1929, there is:

2849. Obverse. Two laureated heads, to right. Beneath that to left: G.A.S. Inscription: Sub Auspiciis Aust. Imp. Ferd. Et. Frz. Jos. I, 1886 (rosette) Reverse. A crowned spread eagle, to left, behind a bridge. Inscription: Zur Erinnerung An Das 50 Jähr. Jubelfest Des Kurortes Meran (rosette) Silver. 22.35 mm. In my collection.

XIII. *Registration.*

ENGLAND.

Besides No. 1936, there is:

2850. Obverse. Bust, to right. To left of it an olive branch. Inscription: William Augustus Guy 1885 Reverse. A sheaf of wheat. Inscription: Royal Statistical Society 1834. Gold, silver, bronze. 28.60mm. Designed by Henry Bates. Storer, *loc. cit.*, April, 1885, No. 861. I owe the description to Mr. A. H. Lyell, of London.

XIV. *Life Insurance.*

THE UNITED STATES.

2851. Obverse. Within circular depressed field: | Special | Ordinary | Week | $6.870.000 | Inscription: The Prudential Insurance Co. | Of America. Reverse. Within crossed laurel branches: 20 Upon a band transversely across this: Anniversary Above, upon a plicated band: Oct. 14. 1875. Below, upon a similar band: Oct. 14. 1895. Aluminum. 19.30mm. In my collection, the gift of Dr. W. S. Disbrow, of Newark, N. J.

2852. Obverse. Bust (of John T. Dryden, President), to right, between laurel branches tied by ribbon. No inscription. Reverse. Within field: 1875 | 1895 Inscription: Prudential Insurance Company. Gold. 14.23mm. With loop. Given for twenty years service. I have impressions from Dr. Disbrow.

2853. Obverse. A lion to right, seated, with paw on ball. Reverse. A Maltese cross, bearing wreath, within which, in monogram: P O G (Prudential Old Guard.) 18.28mm. With loop. I have drawings from Dr. Disbrow.

FRANCE.

I am now enabled to give the description of the following:

(1508.) Obverse, a woman erect, to left, with three nude children. Beneath, to right: A. Gerbier Reverse. Within oak branches, tied by ribbon: 2 | Août | 1844 Inscription: Le Conservateur Compie. Anonyme | D'Assces. Sur La Vie. Silver. 23.37mm. In my collection.

2854. Obverse. An ornamented safe, with three keyholes. At left a semi-nude female, with pen and scroll, upon which: Policé D'Assurance. At right, a man with child offers her an inkstand. Legend: La Prevoyance Dote L'Avenir. Exergue: XXIII Mai | MDCCCXXX | Desnoyers-F. Reverse. Within oak branches tied with ribbon and twined with ivy: La | Nationale | Compagnie | D'Assurances | Sur La Vie | Humaine. Silver. Octagonal. 23.36mm. With loop. In my collection.

2855. Obverse. Two heads, to left. Beneath: A. Bovy. Inscription: A. P. La Rochefoucauld Duc De Doubeauville * F.L.S. La Rochefoucauld Duc De Doubeauville. Reverse. La | Concorde | Société Anonyme | Pour La Formation | Et La Gestion | De Sociétés Mutuelles | D'Assurances Sur La Vie | Ordonnance Royale | Du 12 Mars | 1842. Silver. Octagonal. 22.35mm. In my collection.

(*To be Continued.*)

MEDICAL EXCERPT.

By T. P. Corbally, A. M., M. D.

Grafting Living Bones.—What advantages are to be gained from grafting living bones in surgery? Is it necessary for grafting to take the bone from the subject to whom they are to be applied, or can pieces of bone needed be taken from a dog or other animal?

M. Ricard ("Gazette Hebdomadaire," 18th September, 1898) sent to the Académie de Médicine a memoir on this interesting subject, in which he dwells on the operation of grafting living bones as performed in the course of many operations.

M. Berger, who had presented the report of M. Ricard, very succinctly analyzed it for his colleagues of the Academy. We take, from the "Bulletin Medical," some extracts from this report, as follows:

The first case communicated by M. Ricard was a woman on whom the doctor had operated to supply the loss of a portion of the cranium, which had been removed for an osteo-sarcoma; the material chosen to supply the defect was a portion of the coxal bone taken from a dog. Five years later this patient entered La Salpêtrière suffering from a general sarcomatous condition, but the local trouble previously operated on had not returned. M. Chilpaut as convinced of the fact by palpation and pressure over the seat of the former malady.

M. Berger recalled the experiments of MM. Ollier, Adamkiewicz and Mossé on the grafting of bones taken from animals of a different species, and also the report of M. Le Dentu on the same subject. It has been demonstrated by these experiments that the heteroplastic grafts are most frequently absorbed, and that even when they remain they are partially absorbed; they may be replaced by a fibrous cicatrix which is very firm and which may lead to the belief that the graft still remains; it would be very interesting if, in such cases as this, a radioscopic or a photographic examination could be made, by means of the Rœntgen rays, and more particularly, if it were possible to collect and examine the specimens so as to determine directly the resistance the transplanted bone could endure, as well as to study the anatomical phenomena of which they are the seat.

The second case is that of a young woman who had a deformity of the nose, in consequence of the destruction of the septum as well as destruction of the bony arch. Twice before an attempt had been made to restore the original form of the nose by applying a metallic support, after the method of M. Martin of Lyons, but the metallic frames invariably caused ulceration of the integuments, and led to their protrusion through these perforations. M. Ricard was obliged to remove one of these supports, and having divided the integuments of the nose along the median line, and having separated, by a careful dissection, the skin and the mucous tissue to a certain extent, he introduced between them, on the dorsal region of the nose, a part of the fourth metacarpal bone, which he removed from one of the feet of the patient, for the support of the soft tissues; he then reunited the teguments in front of the autoplastic graft which was thus included. This graft was well borne; the deformity was much improved, yet the bone thus transplanted was in time absorbed and replaced by a fibrous, elastic and resisting substance which maintained the form originally given.

M. Berger has often seen the metallic supports destroy and perforate the tissues they were intended to support. The results obtained by M. Ricard are quite satisfactory; but it is not, and cannot be, perfect; the nose remains short, flattened and broad. The same deformity exists in the cases of Israel of Berlin, who performed a similar operation for the same purpose. The absorption of the transplanted bone is not surprising.

Both Berger and Ricard think that the autoplastic operation has no advantage over that with bones from other animals.

CHRONIC BRONCHITIS.—For the treatment of chronic bronchitis, M. H. Quincke, in the "Berliner Klinisches Wochenschrift," recommends that the patient be stretched at length on a couch, with the feet elevated. Two hours in the morning spent in this position will produce most satisfactory results; the bronchial secretions flow freely, and in some cases abundantly, and relieve the tissues by draining off all the irritating matter that has been accumulating during the previous night.

There is, however, a limit to this treatment; it cannot be successful when the disease is too general in character, or extended to the entire bronchial system, and, especially, if there be cavities filled with pus, it is worse than useless. This therapeutic method of treating bronchitis suggests the empirical treatment of suspending drowned persons by the feet with the hope of emptying the organs and restoring animation.

GALVANISM IN NEURALGIA.—M. Weil has given a very interesting article ("La France Médicale") on the galvanic treatment of neuralgia, and gives also a detailed statement of the excellent results he has obtained from his method of treatment.

He uses galvanism as it has been recommended by M. Bergonié, but he employs very large electrodes and a very strong current. The author has advanced some interesting ideas on the influence of a powerful current on the nervous system, and upon this theory he bases the reasons for his treatment.

He gives in support of his method the case of a woman who had long suffered from intercostal neuralgia, and been subjected to a great variety of treatment without any improvement. She was cured in a short time by the use of the galvanic current applied with large electrodes, at intervals regulated according to the effect on the system in general.

The reporter states that this method of applying electrotherapeutics gives hopes of still greater success in the treatment of all forms of neuralgia.

It is well known that Faradisation, or the interrupted current, has been a favorite remedy for all kinds of neuralgias, but it has the very great disadvantage that strong currents cannot be borne in intercostal neuralgias, nor anywhere if the bones are near the surface, for they are evidently non-conductors, or very poor conductors, as will be found if the electrode be pressed so as to interfere with the conduction through the skin and underlying tissues. This result is especially true in cases of facial and occipital neuralgias; but there is even greater objection to the use of a strong galvanic current in these situations, because of its influence on the brain, producing dizziness and even syncope.

The interrupted current will prove useful if the negative current be applied to the back of the neck, so as to cover the roots of the occipital nerves; the sensation is that of the hair standing erect, and is felt over the head if the current be strong enough; the positive may be applied over some of the soft parts.

SANMETTO IN CYSTITIS.—Dr. Geo. D. Gray, of Haynes, Ark., reports that he has found sanmetto a valuable remedy in cystitis, and in all cases of senile prostatitis. In impotency and loss of sexual vigor, associated with tinct. nux. vom., sanmetto is a remedy par excellence. It is indicated in all urinary troubles.

LONDONDERRY LITHIA WATER may be used with special benefit for irritable bladder and too frequent micturation; and habitually as a corrective of acid stomachs.

IMPERIAL GRANUM, says the "Southern Practitioner," is an absolutely pure food. It never interferes with the action of medicines prescribed; it is neither a stimulant nor a chemical preparation; it contains no malt, no cane-sugar, no glucose. It is most carefully and conscientiously prepared from the finest growths of wheat, containing a large quantity of nourishment, requiring the least possible labor for its digestion and assimilation, thus forming an unrivalled nutriment for the invalid and convalescent; a safe and acceptable nutritive during gestation and for nursing mothers, and a very superior aliment for infants, from birth, and for children.

EDITOR'S TABLE.

SANITARIAN, NOVEMBER, 1898.

☞All correspondence and exchanges, and all publications for review, should be addressed to the Editor, Dr. A. N. Bell, Brooklyn, N. Y.

THE YELLOW FEVER IN THE SOUTH.

Surgeon-General Wyman, on October 9, issued the following statement for publication regarding the present epidemic:

"The disease is confined to Mississippi and Louisiana and is a recrudescence of the fever from last year. In my opinion it did not come from Cuba and was not admitted by any quarantine. The hospital service has a large corps of officers throughout the infected territory All trains leaving infected districts are manned by inspectors of the Marine Hospital Service, and through trains are supplied with guards as well. Freight trains are obliged to change their crews so that the same crews may not go from one infected district to another district.

"The disease has appeared so late that it is extremely improbable that it will assume the extent of a great epidemic. After November 1 there may be some new cases, but there will be no new foci."

The number of cases reported from July 1 to October 6 has been, in Louisiana, 480, with 19 deaths; in Mississippi, 344 cases, with 31 deaths. In point of territory it has been the most extensive epidemic of this disease since 1878, overrunning half of the State of Louisiana and well nigh the whole of Mississippi. It has been remarkable for its mildness and small mortality. But such is the nature of yellow fever, and no estimate of its liability to so recur again next year should be led astray by this incident. Its next recurrence may be attended with great mortality. As soon expect the leopard to change its spots as "yellow jack."

Its extensive development in unusual places is an admonition to State and local health authorities that nothing short of thorough and *continuous sanitation* can be relied upon as a safeguard for the future. As soon expect one thorough house-sweeping on the first of December to prevent the subsequent accumulation of dirt

as expect to prevent yellow fever next year by the one mere clean-up at the beginning of this winter. Nor should the lesson be forgotten that, in neglected sanitation, quarantine against other places is no safeguard.

QUARANTINE is but one blade of sanitary scissors; it is worse than useless without the other—internal sanitation—and its exercise, as it has been exercised during the past summer, every one who has taken account of it knows it to have been a disgrace to sanitary procedure.

For illustration, out of a peck or more of newspaper clippings that have come to our table showing absurdities and cruelties of the cranks who have imposed it, there is the case of a weak, defenceless woman, seventy-four years old, put off the train in the swamps of Arkansas; a mother with a babe at the breast and three small children clinging to her skirts forced to climb down out of the cars on the far bank of Wolf river; a capitalist with certified checks in his pocket for $200,000 which he had arranged to invest in Memphis property, obliged to return to New York; a small boy who saw his widowed mother's cow, the main support of the family, just across the line, and who was refused permission to go out and drive it in; the refusal of guards to allow a party of young lady bicyclists to take a little spin out and back on the same boulevard; of favoritism and "pulls" political and otherwise, disgusting to common sense and humanity.

In view of misdirected efforts, it is hardly conceivable that the next Congress will not so elaborate and strengthen the national quarantine service as to prevent such outrages in the future.

The "Philadelphia Ledger" in discussing this subject puts the matter clearly and pointedly when it says:

"Not only should the Federal Government maintain such a service to guard against infection, it should have the authority of law to manage quarantines regardless of interference by State or county officials. In this way the travel could be halted when necessary and interference with it prevented when no danger need be apprehended. There is apt to be local political influence exerted in favor of or in opposition to the movement of trains, but the effect of such influence would be reduced to a minimum were the decision to rest with the United States medical experts. State rights notions impel many Southerners to resent Federal

control of quarantines, even where they admit the advantages of such control, but there need be no fear that the Supreme Court would restrain Congress in taking precautions against the spread of epidemics. Disease is no respecter of State boundaries."

THE WAR DEPARTMENT INVESTIGATING COMMITTEE.

The Medical Bureau has been asked to answer seventeen different interrogations. Among the most important of these was one asking, "What steps were taken between April 1 and August 31, 1898, for fully supplying an army of 250,000 men with all necessary surgeons, stewards, hospital corps, ambulances, litters, surgical instruments, and medical supplies of all and every character?" Another was, "How many hospitals were established at various camps; what were the arrangements for the care and comfort of the sick and wounded; how many sick were cared for at each camp hospital and how many deaths occurred?" A third was, "How many hospital ships were obtained; how were they equipped, how managed; what work did they perform, and how were the sick and wounded in the captured Spanish colonies supplied with food and medical attendance?" A fourth question asks how the surgeons employed in the field, camps and general hospitals were selected—were they required to pass any regular examination and have they proved efficient and faithful?

Surgeon-General Sternberg sent to the committee a memorandum relating to the Medical Department of the Army, which is, in part, as follows:

"The number of medical officers allowed by law is inadequate in times of peace. The total number allowed is 192. There are at present 13 vacancies. This deficiency in regular medical officers has made it necessary to employ more than 650 contract surgeons. Most of these doctors from civil life are doing good service, and many of them are thoroughly well-equipped physicians and surgeons, with ample hospital experience, but it has been impossible to make a careful selection, owing to the great pressure of business in the Surgeon-General's office, and the urgency has been so great that it has not been practicable to have examining boards to pass upon their qualifications. I have endeavored, so far as possible, to obtain satisfactory professional indorsement before making a contract with an applicant. The number of applications has been so great and the personal visits of applicants and their friends so numerous as to constitute a serious embarrassment in conducting the business of my office.

"In addition to this, there have been appointed by the President 8 Corps Surgeons, with the rank of Lieutenant Colonel; 24 Division Surgeons, with the rank of Major, and 86 Brigade Surgeons; also 3 medical officers for each of the regiments of United States infantry, cavalry, and engineers. All volunteer regiments have three medical officers, appointed by Governors of States.

"The very small proportion of experienced medical officers has seriously impaired the efficiency of the Medical Department, but many of the Division and Brigade Surgeons from civil life have shown great aptitude for the service, and have already become valuable medical officers. The same is true of many of the doctors employed under contract.

"Referring to the alleged deficiency of medical officers with the Fifth Army Corps at Santiago, I would say that this corps upon leaving Tampa had with it 36 regular medical officers, 15 commissioned volunteer officers, and contract doctors, a total of 71, or over 4 per 1,000 of the strength of the command, which I was informed was about 16,000. Additional medical assistance was sent by the hospital ship Relief, which arrived at Siboney July 7 with twenty doctors on board. There was also some volunteer assistance by Dr. Lesser of the Red Cross Society, Dr. Rudberg of the Swedish Navy, and several surgeons of the navy from ships in the vicinity.

"It has not been the expectation of the Medical Department that wounded men would immediately receive the attention of the surgeon. No modern army makes provision for so large a number of medical officers as this would require. But attached to our army there is a corps of non-combatants known as the hospital corps, which is the organized and authorized Red Cross of the army. At the outbreak of the war we had 800 hospital corps men in service. At present there are more than 6,000. We have done our best to instruct them in giving first aid to the wounded, and in a majority of cases a first-aid dressing, properly applied by one of these men, is all that is required."

And with reference to his alleged restriction of the Red Cross Society and other relief associations, he says:

"Furthermore, the American National Red Cross Association has had full authority to send agents and supplies to all our camps since June 9, 1898, and if there has been suffering for want of needed supplies it must share the responsibility with the Medical Department of the Army for such suffering."

The Surgeon-General asserts that volunteer officers frequently accepted supplies offered by relief societies in order to avoid responsibility to the Government for the use of such articles, and declares that "there has been no time since the commencement of the war when the articles mentioned could not have been obtained upon a telegraphic requisition sent to the Surgeon-General of the

Army, if for any reason a sufficient supply was not on hand at the field supply depot."

The developments of the committee thus far indicate that the conclusion will be: nobody to blame. That the selection of unhealthful sites for the camps, the abominable disregard of sanitary conditions and consequent propagation of typhoid fever, and the excessive mortality therefrom, were unavoidable incidents of the war.

PATENT DIPHTHERIA-ANTITOXIN.

Prof. E. Behring has disgraced himself with the medical profession by obtaining a patent from the United States patent office on the *use of diphtheria-antitoxin*. His name was enrolled high on the list of benefactors to his race as a follower of Pasteur in devising methods for the production of antitoxin, but he was only one of several others scarcely less prominent than he so engaged, who, like their leader, have reaped their reward in the conscious knowledge of the benefit they have conferred on mankind.

But, as if to excuse himself to the medical profession ("Philadelphia Medical Journal," October 1), we read in the *Deutsche Medicinische Wochenschrift* of September 15, he replies to his critics. He does not undertake to say "what would have been the actions of Pasteur and Lister could they, without difficulty, have patented their discoveries. He is not disposed to consider the interests of foreigners, particularly of those foreigners who might themselves make use of the patent laws. The Germans should rather decline to sustain the inconsiderate piracy of certain American firms, in that they should not take seriously, nor join with them, in their hypocritical clamors of 'stop thief, stop thief.' In answer to the statement that one is unaccustomed to view the physician as a merchant with medical wares for sale, he queries: *Who says that he is still a physician?* On the contrary, he says that he renounced the medical profession a long time ago, and since then has been obliged to resort to business-methods to acquire the necessary means to enable him to prosecute his experimental-therapeutic investigations."

In thus casting himself out of the medical profession and into the trades, he finds his justification in stifling, if he could, the progress of life-saving measures. But, fortunately, reasonably, at any rate, he has overstepped the bounds of his intent. That the evidently defective grounds on which his patent has been

granted—on the *use* of diphtheria-antitoxin (if we are correctly informed)—will be disregarded and overthrown, appears to us to be beyond question, for it had been given to the public not less than two years before he seems to have bethought himself to patent it. The distinction between the process of making (by Behring or any one else) and the use of antitoxin will doubtless be made sufficiently clear to the patent authorities to, at most, apply to Behring's method of preparing it only; and granting this, inasmuch as his method has been improved upon by others, the antitoxin treatment of diphtheria is not likely to be interrupted by Behring's attempt to support "his experimental-therapeutic investigations" at the expense of human life.

A HOSPITAL CAR to cost $10,000 is being built for the Missouri, Kansas & Texas Railway. It will be provided with a drugstore and an operating room, and will make regular trips over the system.

DOCTOR W. D. CARMICHAEL, recently in charge of the Marine Hospital at Cleveland, has been ordered to proceed to Honolulu and assume control of the Marine Hospital service of the Hawaiian Islands.

THE ERNEST HART SCHOLARSHIP FOR PREVENTIVE MEDICINE is the title of a memorial which the council of the British Medical Association has decided to found in honor of the late Dr. Ernest Hart. The scholarship will be tenable for two years and will possess the value of $1,000.

"SURGEONS-GENERAL OF THE UNITED STATES NAVY" is the title of a unique publication recently issued by The Maltine Company, of New York City. It will shortly be followed by another of like nature. It is an interesting and historical record not hitherto obtainable in convenient form.

THE WHITE CROSS MISSION is the appellation adopted by an organization of nurses established in Oregon. Its purpose is the care of sick and wounded soldiers, and the good samaritans have petitioned the War Department for permission to inaugurate their work in our Pacific possessions.

MR. HERBERT SPENCER has been credited with vegetarian principles. An enthusiastic devotee of the vegetarian school, meeting the philosopher a short time ago, asked him if he still adhered to that system of diet. "I was a vegetarian for one year," Mr. Spencer replied, "but at the end of that time I went over all that I had written during the year and consigned it *in toto* to the fire."

DOCTOR ANITA NEWCOMB-MCGEE, who has examined and selected several hundred nurses since the inception of the Spanish-American war, recently received the appointment of acting assistant surgeon in the United States army, with the rank and pay of a second lieutenant. The doctor is a daughter of Professor Newcomb, of Washington Naval Observatory fame, and has pursued medical study on two continents.

DOCTORS LEE, VAUGHAN and SHAKESPEARE, who constitute the commission appointed to investigate the American army camps, have concluded their labors and report that the pestiferous fly is largely responsible for the spread of disease. The fever was brought by the volunteers from the State camps, and the flies scattered the germs by feasting alternately on feces, hardtack and "sower belly." This finding is the result of inquiry at the camps in Chickamauga, Huntsville, Fernandina and Jacksonville.

HYGIENE IN THE SCHOOLS OF FRANCE.—At the Congress of the French Association for the Advancement of Science, recently held in Nantes, a resolution was adopted, recommending that the teaching of hygiene in the schools and colleges of France be entrusted to medical men, and that adequate compensation be voted those who give the instruction.

MORTALITY AND MORBILITY REPORTS AND REVIEWS.

Correspondents under this head are particularly requested to be as prompt as possible.

ALABAMA.—W. H. Sanders, M. D., State Health Officer, Montgomery.

CALIFORNIA.—C. A. Ruggles, M. D., President, Stockton; W. P. Matthews, M. D., Secretary, Sacramento.

Los Angeles, 103,000. L. M. Powers, M. D., Health Officer, reports for September 113 deaths, 32 under five years of age. Annual rate per 1,000, 13.16. Typhoid fever, 6 deaths; consumption, 14; pneumonia, 7.

COLORADO.—A Stedman, M. D., President, Denver; Henry Sewell, M. D., Secretary, Denver.

Denver, 167,000. William P. Munn, M. D., Health Commissioner. Report for September: Total number of deaths, 132. Annual death rate, 9.48. The principal causes of death were: Phthisis (contracted elsewhere, 32), 42; diphtheria, 1. Cases of infectious diseases reported: diphtheria, 19; scarlet fever, 21; typhoid fever, 21.

CONNECTICUT.—Professor William H. Brewer, Ph. D., New Haven, President; Prof. C. S. Lindsley, M. D., Secretary, New Haven.

By Mortality Reports received, there were 1,351 deaths reported during the month of September. This was 51 less than reported in August, and 215 more than in September last year, and 193 more than the average number of deaths in September for the five years preceding the present. The death rate was 18.2 for the large towns; for the small towns, 17.9, and for the whole State 18.1. The deaths from zymotic diseases were 431, being 31.8 per cent. of the total mortality.

DISTRICT OF COLUMBIA, 280,250—88,772 colored. Wm. C. Woodward, M. D., Health Officer, reports the mortality for four weeks ending October 1, 447. Death rates, 15.20 for the white, 32.64 for the colored, and 23.91 for the whole population. Deaths from zymotic diseases, 99; diphtheria, 25; typhoid fever, 18; consumption, 54.

ILLINOIS.—A. C. Carr, M. D., President, Carlinville; J. A. Egan, M. D., Secretary, Springfield.

The Auxiliary Sanitary Association, in convention at Springfield, September 26 and 27, adopted a resolution recommending legislation as follows:

First—A law making the appointment of local boards of health in all cities, towns, townships, and villages mandatory.

Second—A law prohibiting the interment or cremation of any corpse except upon a permit issued by the Board of Health.

Third—A law compelling applicants for teachers' certificates to pass a satisfactory examination on school hygiene.

Fourth—A law to prohibit the selling of adulterated foods.

Fifth—For the creation and maintenance of a State laboratory for bacteriological examinations.

Sixth—The repeal of the law licensing itinerant venders of nostrums, and advocates a law for their total prohibition.

Seventh—Each physician and midwife shall receive 10 cents for every birth return, and county clerks shall furnish printed postal cards gratis.

Eighth—To give discretion to the State Board of Health as to the disposal of sewage.

Chicago, 1,750,000. A. R. Reynolds, M. D., Commissioner, reports: Total deaths from all causes during the month of September, 1,780; annual death rate, twelve months ended Sept. 30, 1898, per 1,000 of mean population (white, 13.89; colored, 24.14), 14.02.

Deaths from diphtheria, 52; typhoid fever, 65; consumption, 182; other tubercular diseases, 22. Contagious diseases reported during the month: Diphtheria, 206; scarlet fever, 84.

IOWA.—J. I. Gibson, V. S., President, Denison; J. F. Kennedy, M. D., Secretary, Des Moines.

Davenport, 36,000. A. W. Cantwell, M. D., Health Officer, reports for September 34 deaths, 7 under five years of age. Annual rate per 1,000, 11.3.

LOUISIANA.—Edmond Souchong, M. D., President, New Orleans; G. Farrar Patton, M. D., Secretary, New Orleans.

New Orleans, 275,000—80,000 colored.

The newly appointed members of the municipal board of health, Drs. W. G. Young, M. L. Hoffpauir, S. T. Pulliam and C. L. Crippen and A. F. Roberts, have organized. Dr. W. G. Young was elected president and Dr. M. L. Hoffpauir sanitary officer and secretary.

MAINE.—Charles D. Smith, M. D., President, Portland; A. G. Young, M. D., Secretary, Augusta.

Tenth annual report for the two years ending December 31, 1897. A volume of 400 pages, a large part of which is devoted to an elaborate report on disinfection, chiefly with formaldehyde gas, by Prof. F. C. Robinson and B. L. Bryant: "The outcome of an

examination of the results which have been obtained in the last fifteen years or so in the investigation of disinfecting agents. This somewhat prolonged study was indispensable to putting upon a sound scientific basis the rules of the board relating to disinfection. 'Circular No. 68, Disinfectants and Disinfection,' prepared principally for local boards of health and physicians, gives more explicit directions than can be given in the more popular circulars on the various preventable diseases."

With reference to steam disinfection attention is called to the too prevalent mistake that pressure steam is essential to success in the use of steam, that effective work can be done with flowing steam not under pressure. The main requisite is an abundance of live steam streaming through the disinfecting chamber and the enclosed clothing or bedding. These remarks are in thorough accord with and in verification of the earliest recorded observations on the efficacy of steam in the disinfection of foul vessels.

Taken altogether, this report of Professer Robinson and Mr. Bryant on disinfection and disinfectants is the most valuable contribution to the subject hitherto published.

"The most notable outbreak of infectious disease which occurred within the two years was the epidemic of diphtheria in and around Fort Kent. Through an unfortunate series of local circumstances, the disease was found to be widely extended among the poorer class of people in the outlying parts of Fort Kent and the surrounding plantations, when the representative of the State Board of Health arrived. Nevertheless, the rapidity with which the disease was stamped out under adverse conditions, with the thorough use of quarantine, antitoxin, and disinfection, should encourage other local boards to employ the same efficient measures if occasion should call for them."

Much attention was given to the water supplies. A tabulated statement of analyses and "Notes on Some of the Samples of Water Examined" exhibits a useful study of the subject.

MASSACHUSETTS.—H. P. Walcot, M. D., Chairman, Cambridge; S. W. Abbott, M. D., Secretary, Boston.

Boston, 528,912. Samuel H. Durgin, M. D., Chairman of Board of Health.

During the month of August there were 1,195 deaths, of which 634 were under five years of age. Annual death rate, 27.11

per 1,000. Deaths from diphtheria, 9; typhoid fever, 21; cerebro-spinal meningitis, 3; consumption, 81. Cases of diphtheria reported, 89; measles, 67; scarlatina, 42; typhoid fever, 74.

MICHIGAN.—Hon. Frank Wells, President, Lansing; Henry B. Baker, M. D., Secretary, Lansing.

The Secretary reports for the month of September, 1898, compared with the preceding month, typhoid fever, influenza, remittent fever, and tonsillitis increased in area of prevalence. Compared with the average for September in the twelve years, 1886-1897, diphtheria, whooping-cough, scarlet fever, consumption, intermittent fever, and typhoid fever were less prevalent. Reports from all sources show consumption reported at the same number of places (190), typhoid fever at 54 places more, scarlet fever at 7 places more, diphtheria at 2 places less, whooping-cough at 3 places less, measles at 28 places less, and smallpox at the same number of places (1) in the month of September, 1898, when compared with the preceding month.

The total number of deaths registered for September was 2,640, an increase of 186 over the preceding month, and of 270 over September, 1897. The annual death rate was 13.8 per 1,000 estimated population, as compared with 12.5 for August. There were 577 deaths of infants under one year and 271 deaths of children aged from one to four years, inclusive. Important causes of death were, as follows: Consumption, 174; typhoid fever, 94; diphtheria and croup, 31; scarlet fever, 4; measles, 2; whooping-cough, 40; pneumonia, 100; diarrhœal diseases of children, 483; cerebro-spinal meningitis, 41. Consumption slightly declined as compared with August, but typhoid fever, diphtheria, pneumonia, and diarrhœal diseases of children increased. The increase in typhoid fever, which was quite uniformly distributed over the State, may be due, in part, to the return of infected soldiers from Cuba and Southern camps. There were 57 deaths in August from this cause and 51 in September, 1897.

School Sanitation.—The Michigan State Board of Health recommends to all school boards and other officers and persons having in charge assembly rooms that they cause to be observed that the regular care of school-rooms includes sprinkling the floor before sweeping, the subsequent dusting of desks or wiping them with a clean damp cloth, and the airing of the room before its use; that

interchange of books be allowed only under such conditions as render the transmission of disease impossible; that the use of slates be discontinued; that persons known to be affected with tuberculosis of the lungs, or who persistently cough and expectorate, be denied the privileges of such room, either as a teacher or pupil; that all spitting upon the floor by any person be strictly forbidden, and that proper conveniences for receiving sputa be supplied; that, at least once a year, the room and contents be thoroughly disinfected, the woodwork and floor washed with an antiseptic solution, the walls whitewashed, and the plumbing and ventilating inspected.

MINNESOTA.—Franklin Staples, M. D., President, Winona; H. M. Bracken, M. D., Secretary, St. Paul.

St. Paul, 215,582. A. J. Stone, M. D., LL. D., Commissioner of Health, reports for the month of August: 158 deaths, representing an annual death rate of 8.94 per 1,000. Deaths under five years of age numbered 64. Deaths from consumption, 23; typhoid fever, 6.

Minneapolis, 225,600. A. K. Norton, M. D., Commissioner of Health; Miss Edwina J. Peck, Registrar of Vital Statistics. Report for September: Deaths, 175—61 under five years of age; from zymotic diseases, 31; typhoid fever, 16; phthisis pulmonalis, 23. Annual death rate, 10.56. Cases of contagious diseases reported during the month: Diphtheria, 11; scarlet fever, 6; measles, 0; typhoid fever, 81.

MISSOURI.—E. L. Standlee, M. D., President, St. Louis; Paul Paquin, M. D., Secretary, St. Louis.

St. Louis, 623,000—36,000 colored. M. C. Starkloff, M. D., Commissioner of Health, reports for August: The annual death rate per 1,000 during the month was 13.32, this being based on a population of 628,000, computed on census figures of 1890 (460,000), at the rate of four per cent. annual increase. During the month there were 199 more deaths than the previous month. Fifty certificates were issued for deaths occurring outside the city limits; these were not included in the monthly statement. Percentage of deaths in eleemosynary and other institutions of a public character to total mortality, 21.7. Percentage of deaths in city institutions to total mortality, 13.3. White population, 587,000; mortality rate per thousand, 12.36. Colored population, 36,000; mortal-

ity rate per thousand, 29.28. Report for the year 1897: 9,897 deaths, of which 133 were caused directly by the cyclone, making a death rate of 17.3 per thousand. The record is based on an estimate of 570,000 inhabitants. The mortality of children under five years of age was decidedly less than the preceding year; 3,326 deaths, making the rate for this year 23.7, last year's rate being 36.8. The effort of the department in compelling better sanitary condition of the dairies and supplying children with more wholesome milk, is showing its beneficial effects.

Kansas City, 200,000. A. N. Shirk, Health Officer, reports for August: 156 deaths, of which 45 were under five years of age. Deaths from tuberculosis, 15. Annual death rate, 9.36 per 1,000.

NEW JERSEY.—C. F. Brackett, M. D., President, Princeton; Henry Mitchell, M. D., Secretary, Asbury Park.

Twenty-first Annual Report of the State Board of Health and Report of the Burea of Vital Statistics, for 1897. Total number of deaths during the year ending June 30, 1897, was 29,822. Estimated population, 1,764,194. Annual death rate 16.90 per 1,000. Differentiating the population of the urban and suburban and rural districts the death rate in the former was 16.45, in the latter 14.04. The number of deaths from the ten chief preventable diseases was 9.427; consumption, 3,237; diarrhœal diseases of children, 3,450; typhoid fever, 478; whooping-cough, 341; scarlet fever, 203; measles, 156; malarial fever, 132; erysipelas, 68; smallpox, 0.

Newark, 235,000. Health Officer Chandler reports for the four weeks ending October 8: Deaths, 305—125 under five years of age; from diphtheria, 10; consumption, 37; typhoid fever. 10. Annual death rate, 16.8.

Paterson, 111,500. J. L. Leal, M. D., Health Officer, reports for year ending March 20, 1898: Deaths, 1,783—702 under five years of age. Death rate, 16.53. Deaths from diphtheria, 93; consumption, 201; diarrhœal diseases, 177.

NEW YORK.—Daniel Lewis, M. D., President, New York; B. T. Smelzer, M. D., Secretary, Albany.

The Secretary's bulletin reports for the month of August, compared with the preceding month, the annual death rate from all causes per 1,000 population has fallen from 20.60 to 20.00, and somewhat exceeds the average death rate for August of the past

ten years, which has been 19.80, as well as that of August, 1897, which was 18.75. The infant mortality is but little reduced from that of July, 42.5 per cent. of the deaths occurring under the age of five years. Zymotic diseases caused the same mortality as in July, 25.5 per cent. of deaths from all causes. There was increase in the prevalence and distribution of typhoid fever and malarial disease, decrease in diphtheria, scarlet fever, measles, and cerebro-spinal meningitis, and no change in that of diarrhœal diseases and whooping-cough. Compared with August, 1897, typhoid fever, diarrhœal diseases, and whooping-cough are more prevalent, and diphtheria less so. The maritime and the Lake Ontario and Western districts have a lower death rate than in July, the East Central shows no change, and the rest of the districts have increased death rates. In the maritime district diarrhœal diseases, diphtheria, and scarlet fever decreased, and typhoid fever is doubled, causing 100 deaths. Diarrhœal diseases in all the other districts increased largely, causing double the mortality of July, against a decrease of 300 in the metropolis; this increase in the rural districts late in the summer is customary; for the State the mortality is the average for the month for the past ten years, being about 20.0 per cent. of all deaths, all other zymotic diseases causing 5.5 per cent.. Diphtheria caused 120 deaths, against 159 in July and against an average for the month of 300—the smallest mortality for one month in the past ten years. Scarlet fever fell to a mortality of 26, of which 18 were in the metropolis. Typhoid fever, as usual, has increased in all the districts; the increase is excessive in the maritime district. Whooping-cough caused 170 deaths, August being uniformly the month of its largest mortality. The epidemic of mild smallpox previously reported in the western part of this State has appeared in the towns of Mt. Morris. Caneadea and Alden, its spread being due to failure to recognize it. There were not less than 14 deaths during the month from lightning stroke, occurring in rural localities. The average mean temperature for the month was 70°, which is a little above the normal; the highest recorded 92°, the lowest 40°; the rainfall was 5 inches, an excess of 1½ inches; there were comparatively few clear days; southwest winds uniformly prevailed.

Seventeenth Annual Report, for 1896: Deaths, 124,600; death rate per 1,000 of population, 18.50, .10 less than in 1895. There was no serious epidemic during the year. Total number of deaths

from infectious diseases, 19,510, 16 per cent. of the deaths from all causes. The mortality from typhoid fever was 1,600, 1.3 per cent. of total and below the average; from diphtheria, 4.640, 3.8 per cent. from all causes, and less than during the past ten years; scarlet fever, 771, less than half the average for the preceding ten years; measles was more than usually prevalent, the number of deaths from it was 1,167; whooping-cough caused about 1,000 deaths, during the past ten years the mortality from this disease has been from 500 to 1,300 annually; from diarrhœal diseases, 8,764, nearly half of the total mortality from zymotic diseases, but a little less than the average; from consumption, 13,257, about the average for the past ten years.

Progress continues in the construction and extension of sewerage systems in towns throughout the State. Of nineteen special investigations of prominent nuisances and other conditions in conflict with the public health, Newtown Creek still heads the list, as it has done for the whole seventeen years of the life of the State Board, despite its annual condemnation and frequent gubernatorial proclamations for its abatement within specified periods. It maintains its *pull* with the civil authorities.

New York City, 3,438,800. Michael C. Murphy, President; W. T. Jenkins, M. D., and J. B. Cosby, M. D., Commissioners of Health; Emmons Clark, Secretary; Charles F. Roberts, M. D., Sanitary Superintendent; Roger S. Tracy, M. D., Registrar of Records.

Borough of Manhattan, 1,917,550. Frederick H. Dillingham, M. D., Assistant Sanitary Superintendent; Thomas C. Taylor, M. D., Assistant Registrar of Records. Deaths, 3,427—1,605 under five years; death rate, 22.00; deaths from zymotic diseases per 1,000 deaths from all causes, 250.00; from typhoid fever, 53; scarlet fever, 9; diphtheria, 35; acute respiratory diseases, 277; consumption, 314.

Borough of Bronx, 137,035. Eugene Monogan, M. D., Assistant Sanitary Superintendent; Arthur J. O'Leary, M. D., Assistant Registrar of Records. Deaths, 357—106 under five years; death rate, 26.75; from zymotic diseases per 1,000 from all causes, 245.00; from consumption, 65.

Borough of Brooklyn, 1,197,100. Robert A. Black, M. D., Assistant Sanitary Superintendent; Sylvester J. Byrne, M. D., Assistant Registrar of Records. Deaths, 2,167—1,201 under five

years; death rate, 21.50; deaths from zymotic diseases per 1,000 from all causes, 300.00; typhoid fever, 36; diphtheria, 36; acute respiratory diseases, 118; consumption, 197.

Borough of Queens, 128,042. Obed L. Lusk, M. D., Assistant Sanitary Superintendent; Frank Wickham, M. D., Assistant Registrar of Records. Deaths, 312—164 under five years; death rate, 28.50; deaths from zymotic diseases per 1,000 from all causes, 300.

Borough of Richmond, 64,927. Geo. C. Hubbard, M. D., Assistant Sanitary Superintendent; P. Walter Wood, M. D., Assistant Registrar of Records. Deaths, 168—86 under five years; death rate, 28.00; from zymotic diseases per 1,000 from all causes, 205.

Total: Deaths, 6,451—3,414 under five years of age; death rate, 22.10; deaths from zymotic diseases per 1,000 from all causes, 268.00; deaths from typhoid fever, 93; scarlet fever, 18; measles, 20; diphtheria, 80; acute respiratory diseases, 429; consumption, 598.

School Sanitation.—The Board of Health has approved of the recommendations suggested by Dr. Biggs, the bacteriologist to the board, that it should make to the Board of Education. Among these are the following: 1. The use of slates, slate pencils, and sponges shall be discontinued in all the public schools. 2. According to requirement, pupils shall be supplied with pencils and penholders, each pupil to retain those received in a box provided for the purpose, such box to be marked with the pupil's name. Pencils and pen-holders shall not be transferred from one pupil to another without suitable disinfection. 3. All school property left in the school building by a child suffering from any contagious disease, and all such property found in a room occupied by a family in which a case of infectious disease has occurred, shall be taken by the Health Department for disinfection or destruction. 4. Books which are taken home by pupils shall be covered regularly each month with brown manila paper. These regulations would appear to be somewhat stringent in character, but there is no doubt that scope exists for more precautions than are at present taken in our board schools. Notification has done much to minimize the spread of infectious disease, but it is attention to details such as the foregoing that will eventually stamp it out.

Buffalo, 360,000. Ernest Wende, M. D., Health Commissioner, reports for August: Deaths, 438—211 under five years; death rate,

14.20; from zymotic diseases per 1,000 from all causes, 340.50; diphtheria, 6; typhoid fever, 9; acute respiratory diseases, 47; consumption, 77.

Rochester, 175,000. George W. Goler, M. D., Health Officer. Report for August: Deaths, 160—57 under five years; death rate, 11.00; from zymotic diseases per 1,000 from all causes, 200; acute respiratory diseases, 8; consumption, 20.

Syracuse, 120,000. Report for August: Deaths, 111—45 under five years; death rate, 11.10; from zymotic diseases per 1,000 deaths from all causes, 333; acute lung diseases, 1; consumption, 12.

Albany, 100,000. Report for August: Deaths, 157—35 under five years; death rate, 18.8; from zymotic diseases per 1,000 from all causes, 275.00; typhoid fever, 20; acute lung diseases, 7; consumption, 19.

NORTH CAROLINA.—G. G. Thomas, M. D., President, Wilmington; R. H. Lewis, M. D., Secretary, Raleigh.

The September Bulletin summarizes the mortality for August from twenty-four towns, with an aggregate population of 155,308—66,660 colored. Total deaths, 241—147 colored; under five years of age, 92—65 colored. Death rate, 12.7 for white, 26.5 colored; total, 18.6 per 1,000. Typhoid fever caused 22 deaths; malarial fevers, 30; consumption, 14; heart diseases, 9; diarrhœal diseases, 48; pneumonia, 6.

OHIO.—Thos. C. Hoover, M. D., President, Millersburg; C. O. Probst, M. D., Secretary, Columbus.

The State Board Bulletin for September summarizes cases of infectious diseases reported during the four weeks ending August 27, from 49 places, with an aggregate population of 1,163,225, as follows: Diphtheria, 46 cases, 7 deaths; scarlet fever, 74, 4 deaths; typhoid fever, 162, 16 deaths; whooping-cough, 75, 6 deaths; measles, 30, no deaths.

Report for the year ending October 31, 1897: The number of deaths reported from all causes in cities and towns representing an aggregate population of 2,141,781, was 26,215; death rate, 12.24 per 1,000. Deaths of children under five years of age, 7,115—27 per cent. of the deaths from all causes. Deaths from zymotic diseases, 4,486—17 per cent. of total. From diphtheria, 778; typhoid

fever, 661; diarrhœal diseases, 1,064; consumption, 2,972—11.34 per cent. of the total mortality.

Preliminary Report on Public Water Supplies comprehends the initiation of a work of the utmost importance to the public health. It comprehends special reports on "Stream Pollution," by Allen Hazen; "Chemical Examination of Waters," by N. W. Lord; Bacteriological Examinations," by A. M. Bleile; "Stream Gaugings and Sources of Pollution," by G. N. Brown; "Rock Waters and Flowing Wells," by Edward Orton, all of practical utility; also a drainage map of Ohio.

Cincinnati, 405,000. W. A. R. Tenney, M. D., Health Officer, reports for August: 375 deaths—116 under five years of age. Annual death rate, 11.11. From zymotic diseases, 46; consumption, 39; pneumonia, 15; bronchitis, 11; diphtheria, 2; typhoid fever, 6; whooping-cough, 4.

Cleveland, 370,000. J. L. Hess, M. D., Health Officer, reports for the month of August: Deaths, 443—220 under five years. From diphtheria, 5; typhoid fever, 6; phthisis and tuberculosis, 31. Death rate, 14.36.

PENNSYLVANIA.—Pemberton Dudley, M. D., President, Philadelphia; Benjamin Lee, M. D., Secretary, Philadelphia.

Philadelphia, 1,240,266. Benjamin Lee, M. D., Health Officer, reports for the four weeks ending September 24: Deaths, 1,688. From diphtheria, 55; typhoid fever, 71; consumption, 177.

Pittsburg, 295,000. Report for the three weeks ending September 24: Deaths, 236—96 under five years of age; consumption, 10; typhoid fever, 11; diarrhœal diseases, 31. Death rate, 13.9.

Annual Report for 1897: Deaths, 4,745—62 less than in preceding year; death rate, 16.5. Cases of infectious diseases, 2,318—with 355 deaths; deaths from cerebro-spinal fever, 16; diphtheria, 239; measles, 90; scarlatina, 22; typhoid fever, 184; whooping-cough, 108.

Hazleton, October 3.—The mining towns of Drifton, Eckley, and Tomhicken are scourged with diphtheria. At Drifton, Coxe Brothers & Co., the owners of the town, have taken radical steps to stop the contagion, and the schools have been closed. In Tomhicken twenty-two cases are reported and the residents are panic-stricken. Antitoxin is being used by the physicians, but two deaths have occurred during the past week, and the disease is still

spreading. The town has been isolated and the public schools and churches closed.

SOUTH CAROLINA.—Charleston, 65,165—white, 28,870; colored, 36,295. H. B. Horlbeck, M. D., Health Officer, reports for four weeks ending September 24: Deaths, 167—126 colored. Under five years of age, 53. Annual death rate—white, 18.45; colored, 45.12; 31.78.

Annual Report for 1897: There has been no epidemic of any kind. Scarlet fever was at one time feared, but there were but six deaths from it, five white and one colored. Deaths from typhoid fever, 14 white, 26 colored; malarial fever, 13 white, 27 colored; entero colitis, 17 white, 20 colored; enteritis, 6 white, 33 colored; cholera infantum, 11 white, 20 colored; consumption, 26 white, 158 colored. Death rate per 1,000 of population, respectively, white, 15.52; colored, 31.49: 23.50.

WASHINGTON.—John Kee, M. D., D. V. S., President, Tacoma; Elmer E. Heg, M. D., Secretary, North Yakima.

Seattle, 70,000. Clarence A. Smith, M. D., Health Officer and Secretary.

Report for August: Deaths, 46; from diphtheria, 2; typhoid fever, 2; consumption, 3. Annual death rate, 7.88.

WISCONSIN.—Solon Marks, M. D., President, Milwaukee; U. O. B. Wingate, M. D., Secretary, Milwaukee.

Milwaukee, 275,000. F. M. Schulz, M. D., Commissioner of Health, reports for August: Deaths, 353—88 under five years of age. Annual death rate per 1,000, 14.87. Deaths from diphtheria, 4; typhoid fever, 2; whooping-cough, 10; consumption, 27; other tubercular diseases, 17; pneumonia, 7.

Annual report for the year ending April 17, 1898: Births reported during the year ending December 31, 1897, 7,642—213 less than during the year 1896; birth rate per 1,000 (275,000), 27.79. Deaths, 3,606—298 less than in 1896; death rate, 13.11; 1,502 of the deaths were of children under five years of age. Prevailing causes of death: Consumption, 346; pneumonia, 239; bronchitis, 193; convulsions, 191; diphtheria, 138; enteritis, 149; apoplexy, 92; cholera infantum, 118; measles, 36; typhoid fever, 31; whooping-cough, 19.

BOOK REVIEWS.

INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, U. S. ARMY.—Authors and Subjects. Second Series. Vol. II. B—BYWATER. Government Printing Office, Washington. Conducted by D. L. HUNTINGTON, Deputy Surgeon-General, and Lieut.-Col. U. S. Army.

"This volume includes 15,730 author-titles, representing 6,383 volumes and 14,802 pamphlets. It also contains 5,774 subject-titles of separate books and pamphlets and 21,725 titles of articles in periodicals." A mine of contributors to and contributions on medical literature, gotten up in the admirable style common to the First Series and the first volume of the Second Series.

REPORT OF THE HYGIENIC LABORATORY of the U. S. Marine Hospital Service, for the fiscal year ending June 30, 1896, shows special assiduous attention to and marked improvement in the production, preservation and efficacy of antitoxin serum for the treatment and prevention of diphtheria.

Briefly summarizing the prevalence of diphtheria throughout the United States, special emphasis is laid upon the persistence with which many physicians continue to regard membranous croup as non-infectious, notwithstanding that "it has been demonstrated over and over again so plainly that he who runs may read, that nearly nine-tenths of these cases are laryngeal diphtheria. Yet, despite all this, death certificates are constantly sent in to the Board of Health as 'croup.' These are the landmarks, or, rather, tombstones, marking the foci of epidemics of diphtheria. It is noted with satisfaction, however, that many of our State, provincial, and municipal boards of health are beginning to be emancipated from such ideas, and now regard the terms 'membranous croup' or 'croup' and 'diphtheria' as synonyms, and treat them accordingly.

"The culture test and microscopic examination have been of great value in diminishing the number of reported cases of croup, and it is noted that they bear a direct ratio to the effectiveness of these examinations; that is to say, the more largely they are em

ployed by the physicians the fewer are the cases, not only of diphtheria, but of croup as well.

"By reason of the microscopic and culture tests, we have now two classes of diphtheritic infection to deal with, the one presenting the classical and typical symptoms—the clinical diphtheria—the other where the symptoms are slight or absent, with the bacillus present—the so-called laboratory diphtheria. Viewed from a public health standpoint, this last form is more dangerous than the former.

"It is noted especially that the death rate from 'croup' in the cities of the United States which have not adopted microscopic examinations is very high in proportion to the number of deaths from diphtheria, and also in proportion to the population; while, on the other hand, the number of cases of death from croup in those places in which the diagnosis is made by the culture test has fallen, and the number of cases of diphtheria has increased somewhat.

"Since the adoption of this method for diagnostic purposes there has been a marked increase in the number of cases of diphtheria, due in part to the croup cases already referred to being properly diagnosed and the additional cases of laboratory diphtheria. * * * It must not be lost sight of that the microscopic examinations have been the cause of eliminating a considerable number of cases formally classed as diphtheria.

"In the Province of Ontario the cases of diphtheria, so far as positive evidence can be presented, have decreased where early diagnosis by the culture test has been made use of. In New York, Boston and Washington the death rate has also been materially lowered.

"One thousand two hundred and sixty-five cities and towns, having in aggregate an estimated population of 23,209,937, reported 50,986 cases of diphtheria, with 11,861 deaths, and 4,209 cases of croup, with 2,904 deaths—a mortality rate of 23.2 per cent. for diphtheria and 69 per cent for croup—a combined death rate of 26.7 per cent.

"Investigation of pneumonia, vaccinnia and enteric fever have also been pursued; considerable attention given to water supplies of cities, to Washington in particular, and to disinfection. On the request of the health officer, the privileges of the laboratory have been extended to the Health Department of the District, and a scheme of instruction in bacteriology to representatives of boards of health adopted.

"The following recommendations are submitted:

"I. That there should be uniform rules and regulations adopted by all the States and provinces for the prevention and control of diphtheria.

"The several governments should assume the responsibility and act in unison in preventing the spread of disease from one country to another, and assume authority over interprovincial and interstate communication.

"II. That it should be the duty of the health authorities to provide facilities for determining the diagnosis in all suspected cases by the establishment of inexpensive laboratories for each health jurisdiction and to agree upon a system and means of transmission of material for diagnosis through the mails.

"III. Compulsory notification of all suspected cases and the abolition of the terms 'croup' or 'membranous croup,' unless diphtheria has been excluded by culture and microscopic examination.

"IV. Compulsory isolation of all cases, domiciliary or in hospital, until the recovered cases show the absence of the diphtheria baccillus.

"V. That the medical inspection of schools should be inaugurated under the direction and supervision of the health authorities by making daily inspection in the larger cities of all school children for the detection of infectious disease. In the smaller places and rural districts the inspections, while necessary, need not be made daily, but at least once per week, and daily for several days after the appearance of a case of diphtheria.

"VI. School buildings, books, etc., should be subjected to a reliable method of disinfection at least once per month, and oftener if suspected of being infected.

"VII. The early treatment with antitoxin of those ill with diphtheria, the administration of preventive doses to those who have been exposed to infection and have the baccilli in their throats.

"VIII. Prompt and effective methods of disinfection of infected articles and apartments, to be carried out under the supervision of the health authorities."

REPORT OF THE COMMISSIONER OF EDUCATION for the year 1896-1897. Vol. 1, containing Part I; 1216 pages. Government print. The same may be said of this report as of those of previous years—it is of inestimable value to all educators and citizens who wish to keep posted on the status of education in the United States and foreign countries.

The first eight chapters are devoted to foreign education, covering almost, if not wholly, every conceivable question on the subject from kindergartens and Sunday-schools to military service.

Other subjects are: The Legal Rights of Children; Psychological Tendencies; Engineering Colleges; Biology; Metallurgy;

Sociology; The Tennessee Centennial; An Educational Directory; reports, charts and statistics.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK FOR THE YEAR 1898. 8vo. Pp. 520. Albany, N. Y. Frederic C. Curtis, M. D., Secretary.

This volume comprehends forty-four special contributions and five committee reports, on subjects of interest to all medical practitioners, and memorials of William C. Way, M. D.; Benjamin F. Sherman, M. D.; Joseph Lewi, M. D., and Charles W. Hamlin, M. D.

Of the contributions: "The Hygienic Management of Dairies," by E. F. Brush, M. D., and "The Municipal Control of Milk-supply in Cities and Villages," by W. H. Heath, M. D., are of special interest to sanitary officers.

PROCEEDINGS OF CONNECTICUT MEDICAL SOCIETY. One hundred and sixth annual convention, held at New Haven May 25-26, 1898. 8vo. Pp. 445. N. E. Wordin, M. D., Secretary, Bridgeport, Conn.

This volume comprehends twenty-five special papers and reports on subjects of practical interest to all physicians, and three of them of particular interest to sanitarians and health officers: "The Practical Value of Bacteriology in Medicine," presidential address, by Dr. Ralph S. Goodwin; "Malaria in Children" and "A Certified Milk Farm," reported by the Committee on Matters of Professional Interest in the State.

INFALLIBLE LOGIC—A VISIBLE AND AUTOMATIC SYSTEM OF REASONING. By. THOS. D. HAWLEY, of the Chicago Bar. 8vo. Pp. 690. Bound in full law sheep. Price, $5.00. The Dominion Co., Chicago, Ill.

This is a particularly noteworthy book for its ingenious method in teaching logic. It purports the discovery and description of a new system of logic by which the processes of reasoning have been simplified and reduced to infallibility. By this system the conclusion derived from the given premises is as certain as the answer to an arithmetical problem. Because of its complexity and uncertainty, logic has heretofore been a subject for scholars only. This system appears to be so simple that anyone of ordinary intelligence can learn it and become an accurate reasoner. It is particularly commended to teachers, lawyers and professional men generally who would settle controversy.

CONTEMPORARY LITERATURE.

ARMY SANITATION.

The well-informed commander of to-day knows that the little matter of boiling camp water before drinking it is really of vast importance. It cannot always be accomplished when advancing on the enemy, but it can always be done in camp. He knows that the sanitary conditions of a force in active campaigning may be so good that it is free to move, able to endure forced marching and sharp fighting, and to push forward with a speed and energy which fully double its efficiency. He knows that the same force of men unscientifically cared for is hampered in its movements by its sick, its effective number is reduced, it can do less when reinforced than it ought to do alone. He knows that in loss of military strength there is nothing to choose between one man sick and two men killed. And he knows very well that the difference between an army that has faithfully boiled its water while in camp preparing for the field and an army that has neglected to do so, may be the difference between an army carrying typhoid fever with it as an invisible ally of the enemy and one free from that infection.

It is not hard to understand how it is that men suddenly called on for service, hurriedly gathered together in great camps, hastily supplied and under the orders of commanders who have not handled large bodies of troops in war, should have become the victims of preventable disease. To understand is not to excuse. Because a duty presents difficulties it is not the less a duty. Troops are punished for breaches of discipline. Officers would certainly be held rigidly to account if they sent their men into action unarmed or short of ammunition. They should be held just as rigidly responsible for laxity in enforcing sanitary regulations. No subject is of more importance to the master of an army than the medical supervision of his forces. Whatever rigidity of discipline is needed to enforce thorough sanitation it is his imperative duty to maintain, not primarily because he wants to be kind to his men, but because it is a military necessity for him to have his force in shape for use. Other things being equal, the general who is a stern sanitarian will win in the long run, and this becomes more and more exactly true with the advance of knowledge.—From "Medical and Sanitary Aspects of the War," by Dr. Carroll Dunham, in the "American Monthly Review of Reviews" for October.

AMERICAN ENERGY IN SANTIAGO.

General Wood is making excellent use of his authority over the district of Santiago. His first aim has been to enforce order and restore confidence, and then to establish an American school system as far as conditions would permit. He has increased the number of the police, and reduced the salaries of a number of officials who were very expensive and little more than ornamental. His reform of the schools is admirable. It was found that functionaries known as school commissioners were getting most of the pay for comparatively little work, while miserably underpaid teachers were giving such defective instruction as their training fitted them for. General Wood has increased the salaries of the teachers, and provided for the teaching of the English language therein. These changes may be unpalatable at first to Spanish and Cuban prejudice and indolence, but with experience will come a gradual consciousness of what intelligent citizenship means.—"Harper's Weekly."

THE CLIMATE OF THE PHILIPPINES.

Prof. Dean C. Worcester, of the University of Michigan, has written an article on "Knotty Problems of the Philippines" for the October "Century." Prof. Worcester says:

"The first serious obstacle that will be encountered is that presented by the climate. The islands lie wholly within the tropics, and extend on the south to within four and a half degrees of the equator. The heat is trying at the best. Personally I have found the burning sun of the dry season less hard to bear than the 'muggy' weather, when bright sunshine alternates with heavy showers, or the rain falls day after day without interruption. One often reads of delightful days and cool nights in the fall and winter months. After spending three and a half years in almost constant travel through the archipelago, and visiting every one of the larger islands except Leyte, I can say that I have never yet seen a day when a man could endure hard physical labor without suffering from the heat. I have experienced the hot season, the dry season, the wet season, but never yet have I been so fortunate as to strike the *cool* season."

IN "THE SANTIAGO CAMPAIGN," in the October number of "Harper's Magazine," Mr. Caspar Whitney gives a complete and consecutive narrative of the greatest campaign of the late war,

with thrilling personal experiences under fire. The article is illustrated from photographs by the author, James Burton, William Dinwiddie, and others, and in addition has two maps drawn from notes taken in the field by the author.

SCIENCE AND THE LENGTHENING OF HUMAN LIFE.

This tendency of increase of relative product has been accompanied by an enormous increase in the capital of the world—that is to say, in the products of labor saved for future reproductive service—and this vast relative increase of capital has tended to a great reduction in the normal rate of interest earned in its safe use. The improvements in sanitary science have also led to a very considerable prolongation in the lives of the intelligent. It is probable that the great life insurance companies have only been saved from the disaster which might have ensued from the rapid reduction of the safe rates of interest on their investments by this fact that life has been prolonged considerably beyond any of the life tables which are made use of in computing the annual premiums. These gains have not been made by means of the frequent wars of the century, but in spite of them. The effect of war has been to devastate sections of important countries, and to diminish production more than it lessened population. The effect of the conscription of the strongest and healthiest of the men has led to their destruction in great numbers, and to the survival only of the less capable and less fit to reproduce their species. There has even been a distinct deterioration in the size, weight, and physical energies of the population even of great countries like France; yet in spite of these evil influences the population of continental Europe has steadily increased.—From "The Evolution of High Wages from Low Cost of Labor," by Edward Atkinson, in "Appleton's Popular Science Monthly" for October.

PUBLIC PARKS AND PLAYGROUNDS.

The movement for small parks and public playgrounds grows apace. In New York and Philadelphia it has made rapid and substantial strides; Chicago is not far behind; indeed, Western cities generally have shown wise foresight in providing for ample breathing space, and means for recreation. In some cities the demand for parks and playgrounds has been incorporated in the platforms of political parties, notably in that of the Citizens' Union of Greater New York. In Philadelphia the City Park Association

has so far succeeded in moulding public policy that not only has the area of squares and small parks in the more densely populated section been greatly enlarged, but a long look ahead has been taken, and ample provision made for future needs. I think we can say that this phase of the movement has succeeded to an unexpected degree, and it does not seem to be any longer a question of policy, but rather one of means and ability.—From "The Movement for Municipal Reform," by Clinton Rogers Woodruff, Secretary of the National Municipal League, in "North American Review" for October.

A DIVER'S SIGNALS.

James Cassidy writes an article about diving, entitled "Under the Sea," for the October "St. Nicholas." Mr. Cassidy says:

Each diver, while under water, requires a signalman to hold his life-line (that is, the line fastened round his waist, by which he is hauled up) and the air-pipe, both of which should be kept just taut, so that any movements of the diver may be felt. The signalman is of the utmost importance to the diver; indeed, to use the words of a diver with whom we recently talked, he is *his life*. He must exercise the utmost vigilance all the time that the diver is down. Should the attendant give one pull on the life-line, it signifies, "How are you getting on?" If all is well, the diver gives an answering pull to reassure those above. Two pulls on the air-pipe, given by the diver, mean "More air" (pump faster); and so on throughout the code of signals.

In addition to the signal-code, modern invention has adapted and utilized the telephone, and a speaking-apparatus for men working at a depth of sixty feet or more is frequently used. It has been adopted in Great Britain by the Admiralty, the War Office, and the School of Military Engineering. The electric light also is now employed by divers working at a depth beyond twenty feet.

THE CARE OF ANIMALS.

The boy who is really fond of animals never ill-treats his pets, or abuses and makes a slave of his dog. On the contrary, his dog is his companion and playmate.

The boy knows that a dog's master is a god in the eyes of the poor brute, and is worshipped with canine devotion, which again and again has been proved faithful unto death. Such knowledge makes the boy just and kind. But a dog is only a domesticated

wolf, and the wolf is not the only wild creature which can be domesticated; neither is the wolf the only animal which can appreciate kindness.

The same care which transforms a red-mouthed wolf into a faithful dog can transform other undomesticated beasts into useful creatures. As soon as an animal learns that you are contributing to its comfort in place of tormenting it, you may notice it will greet you with a milder expression. As soon as you can make the wildest and fiercest beast understand that the use of jaws, claws, or sting are unnecessary, it will refrain from using them. It is not always possible to come to this understanding with the larger beasts, but the lad who loves his pets will bestow upon the little creatures that affection which shows itself in a sympathy which can understand their wants and necessities. Such a lad can perform wonders; birds will come at his call, the small beasts of the field will follow at his heels, and no child will fear him.—"Harper's Round Table."

SOMETHING ABOUT THE KITCHEN.

"There is a fine large kitchen," will often be heard from the house-hunter, but every foot of room beyond what is needed is a distinct detriment. Most of the French hotel kitchens, where fascinating gastronomic marvels are produced, consist of a range and a table at the cook's back, with just enough room for him to stand in. His pots and pans are hung on hooks on one side of the range, and the necessary dishes are ranged on wall-shelves at the other. He wastes no steps.

If "piped" water is introduced from a town or city water-works the labor of housekeeping is immensely diminished, but as this happy condition is by no means universal, the location of the well or the cistern becomes an important consideration. Thousands of steps may be saved and hundreds of exposures avoided by thinking beforehand on these: a little longer piece of lead pipe will bring the cistern water into the kitchen, so that the pump can be placed close to the sink, and a short length of rubber hose-pipe fitted to the spout will save the heavy lifting that keeps many women ill all their days.

Space and steps can be economized by placing the kitchen windows so high in the wall that a hanging table can be placed under them, and put up out of the way when not in use.

Some of the undesirable "largeness" of the kitchen could be utilized in a light closet, where all cooking utensils, from pots and

pans to æsthetic jelly-moulds, could be stored, and the kitchen sink, of iron, with legs of the same material, would give no means of hiding damp rags and brushes to breed mould and bacteria. The kitchen sink itself, and the sink in the butler's pantry, should be arranged on the same plan, with a broad shelf for soiled dishes at the right, and a grooved drain-board at the left, and a dresser immediately above for the reception of the cleaned dishes. Suppose you reverse the position of the table and the board. Washing dishes three times a day for 365 days of one year makes 1,095 dish-washings. Think of the vital force wasted in putting these dishes across to the other side! Until a race of left-handed dish-washers shall have been evolved, the arrangement described is the only proper one. The doors leading from the butler's pantry to the dining-room, and from the kitchen into the pantry, should be swing doors, hung so that a maid with a full tray of dishes can pass without touching them, while the undesirable smells and sounds of the kitchen are excluded. All doors should be hung so as not to "interfere." With a cellar properly made under the whole house, a laundry in the basement should be provided, so as to remove the soiled garments from the neighborhood of cooking food. This does not necessarily involve set tubs, but it does need a simple laundry stove, and when once that is secured the basement can be warmed sufficiently for drying in the winter; for it is little less than murderous for a woman to carry clothes from a hot steaming laundry into a zero atmosphere. The martyrs of the clothes-yard are uncounted. A house where all these details have been provided for will add to the days of its owner by the simple conservation of vital force.—Mrs. H. M. Plunkett, in "Harper's Bazar."

"THE CENTURY'S" NEW WAR SERIES.

"The Century Magazine" makes the most important announcement for the coming year that it has put forth for fifteen years. It is that length of time ago that the magazine announced its "War Series," which grew into the most notable history of the Civil War that has appeared. A New War Series is now promised, dealing with the recent war in the same remarkable way that gave distinction to the former series.

Admirals Sampson and Schley have engaged to contribute to "The Century's" New War Series, which will include articles by nearly all of the leading officers of the army and navy. Admiral

Sampson will give an account of the operations of the squadron under his command, with special reference to the hunt for Admiral Cervera's fleet, including the attack on San Juan, Porto Rico, and the manœuvres and plans which resulted in the destruction of the Spanish ships. Admiral Schley will write of the operations of the Flying Squadron in the search for the Spanish fleet, and his narrative will also represent the part taken by the "Brooklyn" in the action off Santiago.

The first volume of "HARPER'S ROUND TABLE," in its new monthly form, which is now completed, contains an unusually excellent collection of serial and short stories, strikingly told and graphically illustrated. There are articles of travel and exploration; practical and instructive articles; narrative and descriptive articles; articles on hunting, fishing, and sport of every kind. The bound volume is in every way an ideal holiday gift for young people.—Harper & Brothers, Publishers, New York.

ONE of the latest of the Southern writers to make himself known by good work, which has also charm, is John Fox, Jr., author of "A Cumberland Vendetta," "The Kentuckians," "Hell fer Sartain," etc. Mr. Fox is a young man; in fact, it is but a few years ago he graduated from Harvard, but he is rapidly coming to the front as a writer, and much is expected from his new novel—a love story of the Spanish-American war—which will be published in "Harper's Magazine." William Dean Howells, in his papers on "The Southern States in Recent American Literature," now appearing in "Literature," says that Mr. John Fox, Jr., in his short stories, shows himself to be in direct touch with his material, which is praise indeed. Another writer of the South who commends herself to Mr. Howells is Miss Ellen Glasgow, a young Virginian girl who made her way to popularity with a work called "The Descendant," and has increased it with her latest book, "Phases of an Inferior Planet." "She is, in fact," says Mr. Howells, "the very latest arrival from the South in our literature; but hardly half her work has to do with her own region; the rest concerns itself with the journalistic Bohemia of New York. This is not quite such alien ground as it might seem, however, for the newspaper world of New York is partly peopled from the South. Her book has a good deal of nervous force, both in the better and the worse sense."

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THEATRE SANITATION.*

BY WM. PAUL GERHARD, C. E., Consulting Engineer for Sanitary Works.

The honorable President of our Association has invited me to prepare a paper for its annual meeting, and seeing that the Executive Committee has placed among the topics for consideration "Sanitation, with Special Reference to Drainage, Plumbing and Ventilation of Public Buildings," I have selected as my subject "The Hygiene of Theatres," not so much with a view of presenting any new facts or startling theories, as with a view of eliciting discussion upon a question of sanitation which has been hitherto somewhat neglected.

One reason for this apparent neglect is undoubtedly the fact that, though large numbers of persons are congregated in theatres, concert halls and other places of amusement, the duration of stay in such buildings is a brief one, never exceeding three or four hours at the most, whereas in other public buildings, such as schools, court houses, assembly halls and lecture halls, occupancy generally extends during the whole or a large part of each day. I venture to assert, however, that going to see a play would be a far greater pleasure if theatres were adequately ventilated and otherwise kept in a sanitary condition.

My intention originally was to base the statements of this paper upon a careful detailed personal examination of existing theatre buildings, but pressure of business and the limited time afforded me for the preparation of this paper prevented me from making such special studies and inspections, and I am therefore obliged to draw largely from casual experiences and observations taken

* Read at the meeting of the American Public Health Association, Ottawa, Canada, Sept. 27, 1898. Published in THE SANITARIAN by special permission of the Secretary.

while visiting both parts (i. e., before and behind the curtain) of a number of theatres.

Arrangements for the comfort and health of theatre-goers, of actors and stage employes, are seldom considered, except in the rare instances of a few recent metropolitan theatres. Leaving these out of consideration, it is no exaggeration to state that most theatres are ill-ventilated and badly drained; that the arrangement of their toilet-rooms is unsanitary and ill-planned; that the plumbing is defective, the water-closet accommodation inadequate, the dressing rooms overcrowded and without any provision for comfort and fresh air, and that the general state of cleanliness of the building is very far from being satisfactory.

It is a well-known fact that there are vast numbers of persons who, while they would thoroughly enjoy a good play, are restrained from visiting such places of amusement, for the very good reason that they fear the exposure to the stifling, noxious, overheated atmosphere of the buildings, and who are sure, if they do go, to awake the next morning with a severe headache or with a cold or sore throat, contracted through exposure to draughts. If this is true of the theatre-goers, how much more must the performers and stage hands suffer, who are obliged to remain in the building not only during the performance, but also for rehearsals, and for the countless preparations incidental to the staging of a new play. The general state of health of performers must suffer, and they are often subject to throat troubles and other ailments.

The arrangement of the stage dressing rooms is at times frightful beyond description. Often they are located below the level of the stage in narrow, dark, underground passages, without outside window or any other means of ventilation. Their size is reduced to a minimum, and they are generally overcrowded. In many instances the theatre architect has done his best to provide suitable dressing rooms for a small company, and the place is subsequently changed to one devoted to comic opera or spectacular entertainments, requiring a large number of performers. To accommodate these, the dressing rooms are partitioned off, or dark underground places are selected for additional rooms. Then again we find the water-closet accommodations, both for the public and for the actors and theatre employes, insufficient and always more or less antiquated, worn out and defective, or with an insufficient water supply and flush. In many places their location and state of

untidiness suggest the greatest disregard for decency and moral feeling.

One of the usual defects has reference to the site or location of a theatre, for the site frequently decides the location of the places from where the fresh air for the audience is taken. Many of the older theatres are located in the middle of a city block, with only one side fronting on the street. At the back or side of the building there is in some cases a small, dark, ill-aired court, obstructed by rubbish and accumulation of disused stage scenery, and which is frequently used as the only available urinal accommodation for the stage hands. How can it be possible to provide suitable inlets for fresh air for the audience in such courts, where the air must be of necessity foul? Quite often odors from neighboring restaurant kitchens, or from stables, extend to this court and rush up to the stage whenever a door is opened. The isolation of the buildings, at least on three sides, is therefore very desirable, not only for safety's sake, but to provide efficient ventilation.

In the under stage we often find other sources for bad odors, such as defective or leaky sewer pipes, untrapped floor cesspools and abominable pan-closets. The contaminated air will naturally rise to the stage and rush into the auditorium whenever the curtain rises or when the orchestra exit door to the under stage is opened for a moment. I know of at least one theatre in Greater New York where, each time the curtain rises, a strong whiff of sewer air greets the audience.

The plan of a theatre building often is, of necessity, such that the auditorium has few, if any, windows to the outer air, which could be used for air-flushing when the house is not occupied. As a result of the shortcomings just mentioned, theatre audiences are obliged to breathe for several hours in succession a noxious compound of the products of combustion due to gas illumination, and of the respiration and perspiration of hundreds of people, some of them doubtless in need of a thorough washing, while many are clothed in ill-smelling and dirty underclothes.

During a performance the atmosphere thus becomes stuffy and oppressive beyond description. It is stated upon good authority that chemical analyses show the air in the dress circle and gallery of many a theatre to be in the evening more foul than the air of street sewers.

Behind the curtain the worst forms of unsanitary conditions

often exist. The stage floor is full of dust, which is but rarely thoroughly swept, and becomes stirred up by the constant shifting of scenery, by the rolling up of stage carpets, by the moving of furniture and set pieces, by the dancing, etc. In the auditorium the carpets, upholstery of the seats, and the box decorations and hangings, become saturated with the vile odors, possibly causing sore throats to persons in the audience susceptible to such ailments. Plush seats and floor carpets in public places are harbingers of dust and disease germs, such as those of tuberculosis.

The wonder is that the public will not abstain from going to theatres the sanitary conditions of which are notoriously and grossly bad. If they were to do this, it would set managers thinking, and reforms in the matter of theatre sanitation would soon be begun, in the same way as improvements in the safety of such places of amusement were, to some extent, impelled by the fact that after a theatre fire disaster the public kept away from buildings known to be unsafe or even veritable death-traps.

Having briefly alluded to some of the usual defects, I will now speak of the hygienic requirements of theatres and suggest some remedies which would render such buildings sanitary and comfortable and would enable theatre-goers to derive a few hours of real enjoyment and to thoroughly appreciate a play.

I am convinced of the fact that sanitary reforms will in the future be accomplished if only the public will demand them.

I. Drainage.

In arranging for the drainage and sewerage of a theatre building the general rules as to size and material for the sewer lines, the grade to be given, the manner of making proper pipe joints, etc., should be followed. As a rule, the area covered by a theatre building is so large as to require at least two six-inch sewer connections. Proper attention should be paid to proportioning the sizes of the rain-water conductors which drain the roof surfaces over the stage and the auditorium, which latter are at times very extensive.

All areas and courts should be properly paved, pitched, graded and drained. A difficulty in the way of drainage often arises from the considerable depth to which that portion of the stage house known as the "under stage" has to be carried. Owing to the requirements of stage traps and stage machinery, the level of the under stage is frequently located below the level of the sewer

in the street. Any subsoil water accumulating in the sump must be removed by lifting same by means of either automatic cellar drainers, worked by water pressure, or by means of steam ejectors, or finally by electric centrifugal pumps. Often the entire sub-cellar is constructed perfectly watertight, like the cellar of a warehouse situated below tide or subsoil water level. This not only keeps out the subsoil water, and prevents dampness, which is undesirable for the stage house, as it would tend to ruin the stage flooring, the stage properties and the actors' and supers' costumes, but it also prevents ground air from rising upwards, and tends to keep the air of the stage pure and wholesome.

II. Plumbing.

I do not exaggerate when I state that there are but very few theatres which have the plumbing properly arranged. Of course we find in recently built theatres of cities where plumbing rules and regulations are enforced, that the soil pipes and waste lines are carried full size up to the roof and the fixtures are separately trapped. Generally, however, the plumbing is of the plainest kind and without any attempt at elaboration. On the other hand, the plumbing of theatres and "opera houses" in smaller towns and villages exhibits often the worst defects imaginable, the entire work being carried out in a slipshod manner, the water-closets of dressing rooms being generally set on "dead ends" of drain lines, having no soil pipe extension to the roof and often being a part of the dressing rooms, partitioned off only by thin board partitions. Basins and sinks are often in direct connection with the sewer, traps being considered a superfluous and altogether too expensive refinement for such a building. In dark corners disused closets or sinks are at times discovered. Drains are laid in a haphazard manner, often sloping the wrong way. Tile drains and cement pipes are used where extra heavy cast-iron sewer pipes should be run; all manner of faulty joints are discovered, and in many cases the sewage drips on to the floor and becomes the cause of the annoying odors which so often greet the audience when the curtain rises. Pan-closets and ill-flushed hopper-closets are used, and the apartments in which they are arranged are found to be in an indescribably filthy condition. This being the case, is it surprising that we should find, even in some of our larger cities, an advertisement printed on the theatre programmes stating

that "the 'Ne Plus Ultra' (or other well-known disinfectant) is used in this theatre?"

It goes without saying that the plumbing of theatres should be planned and arranged with the same care as that of other public buildings. There should be toilet rooms for each tier in the auditorium, entirely separate retiring rooms being provided for men and women. Sufficient accommodations should be provided in that part of the stage house which contains the dressing rooms for actors and actresses. In addition there should be in the basement well arranged and ventilated toilet rooms for the stage hands, employes and the supers. The office of the theatre manager often has a separate toilet room, and there is, in larger houses, a toilet room adjoining the star's dressing room. Near the engine and pump room a toilet room for the engineer and his help should be provided, and if there is in the front part of the house a smoking room or refreshment room, a men's toilet room is arranged with urinals and lavatories.

Handsome, nickel-plated work and fittings do not seem called for in a theatre, except possibly in the toilet rooms of the parquet and dress circle, or for the occupiers of the boxes, in large opera houses; but, nevertheless, the entire arrangement should be in every way sanitary, and the best workmanship is required. Woodwork should be avoided for well-known reasons. The floors and walls should be rendered waterproof and non-absorbent, partitions between water-closets and urinal stalls should consist of marble, slate or soapstone. Every toilet room should have a window to the outer air, and in addition artificial ventilation by exhaust flues should be provided.

The closets should be of glazed earthen or vitreous ware, which will not craze. The type known as "washdown" closet is particularly adapted for a theatre, and the flush for the same should always come from a special copper-lined flushing cistern with pull-flush, though an automatic seat-flush may often be preferable, owing to the careless manner in which the public, as well as stage hands, use such places.

For the same reason it may be preferable to have porcelain urinal bowls with self-acting intermittent flush tanks. In theatres in which spectacular plays or ballets are performed, requiring a large number of female supers and dancers, self-flushing urinettes or pedestal urinals for women may with advantage be provided, as the same require for connection to the sewer a two-inch waste

line, whereas the water-closet, ordinarily used by women as a urinal, requires a four-inch soil pipe.

All stage dressing rooms should be fitted up with small corner or wall lavatories, which must have both hot and cold water faucets, and each of which should be safely trapped, while the waste line should be extended to the roof for ventilation.

I have on different occasions pointed out the sanitary advantages of bathing facilities in general and of the modern rain bath in particular. I trust I may be in accord with the views of sanitary advisers when I suggest that there should be in every theatre one or more douche or rain baths for the use of actors and of the stage employes. A simple, inexpensive waterproof stall of Alberene stone or of slate could be fitted up with a mixing valve for hot and cold water and with an overhead inclined douche. This would not occupy much space, nor would it cost much to run, because hot water is usually available. I am sure it would be well patronized after the close of the performance.

There should be a few slop sinks, both near the stage and in the public toilet rooms, as they are required by the women scrubbing the floors for the emptying of wash water and to draw clean water.

The general principles of sanitary house drainage apply with full force to the plumbing of theatres, and inasmuch as I have frequently discussed and described the latter in various books and pamphlets which are readily accessible, and because there is nothing new to be said, the subject must be dismissed with these few words.

III. Water Supply.

Theatre buildings require a very ample and large supply of water. There should be in each theatre two entirely distinct systems of supply, one of which serves the purpose of fire protection, while the second system provides water for the plumbing fixtures, for flushing, washing and general cleanliness.

The water supply for fire-extinguishing purposes embraces large suction tanks in the basement, roof tanks to supply the automatic sprinkler system, a powerful fire pump in the engine room supplying the fire standpipes and fire valves, etc. This system has been elaborately described by the author in his book on "Theatre Fires and Panics," to which those interested are referred for further details.

The house supply, as stated, should be entirely separate, and where the street pressure is insufficient to supply the plumbing fixtures in the upper parts of the theatre, special house tanks should be provided on the roof over the stage. It will readily be seen that it would be inadvisable to use the sprinkler tank for such purpose, as it might be found empty when water is wanted for fire extinguishing purposes. The rules of the National Board of Fire Underwriters wisely specify that no branch for sinks or for drawing water for any purpose whatsoever should be taken from the sprinkler tanks.

Sometimes house tanks placed above the highest plumbing fixtures, for instance on one of the upper flies or in the rigging loft, fill at night by pressure from the street mains; in the majority of cases, however, it is necessary to pump the water to the tank, which is accomplished by means of direct-acting steam pumps, or by electric pumps, or hot-air engines, or even windmills placed on the roof.

The house water service comprises, further, a hot-water tank, because the players and supers require in their dressing rooms hot water in abundance at the basins and wash sinks to remove the face paint, etc. Hot water is likewise required at the slop sinks for the use of the scrubwomen.

Regarding service pipes, their material and arrangement, shut-offs on the lines and their branches, the water service system does not differ essentially from that provided for other public buildings. Where drinking water is provided on the stage, and in the corridors outside of the dressing rooms, filters may be required, and likewise water coolers. These do not present any special feature worth mentioning.

IV. Ventilation.

I come now to a very important requirement of theatre buildings, namely, that of ventilation. I have already made allusion in my introductory remarks to the almost universal lack of sufficient ventilation in theatres, which causes the restlessness, languor and drowsiness of theatre audiences, and I have pointed out that a wise and thoughtful theatre manager will, in order to insure a "full house," use all possible means and care to have his house well ventilated, for nothing contributes more to the enjoyment of an audience than pure air, and in the future those theatres will

be patronized by the public by preference which are as safe as they can be made from the danger of fire and panic and which also have an efficient system of ventilation.

It is impossible, in a paper such as this, to discuss in detail the various systems and methods of theatre ventilation.

When new theatre buildings are to be erected architects should always associate with them an expert in heating and ventilation, which two problems always go together. I must content myself with pointing out that it is necessary that every part of a theatre should be ventilated—not only the auditorium, but likewise the stage, the dressing rooms, the under stage, the engine room, the vault where the gas meters stand, and finally, the numerous toilet and retiring rooms in both parts of a theatre.

The amount of ventilation to be provided varies with, and depends largely upon, such factors as the mode of lighting employed, whether by candles, by oil lamps, by gas lights, or by electric lights; upon the size of the building, and in particular the number of people which can be seated in the entire auditorium; and also upon the general state of cleanliness of the building, to which I shall refer again hereafter. Doubtless the introduction of electric lighting in theatres has contributed more than any other agent to render this vexed problem a good deal easier to solve.

In designing a system of ventilation for a theatre it should be borne in mind that ventilation means not merely the removal of foul air, but simultaneously the introduction of a sufficient quantity of pure air, drawn from a suitable source out-of-doors, suitably filtered and warmed in winter time, suitably sprayed or cooled with ice in summer time, and introduced at all times without any unpleasant air currents or draughts.

It is manifestly insufficient, then, to merely provide in the auditorium a few outlet flues and ventilating registers of restricted size for the removal of foul air, and to rely upon fresh air being drawn in through accidental openings or cracks or crevices, or from the level of the stage. In all cases, both inlet and outlet flues of generous size should be arranged, and care should be taken that the same are in no way obstructed. There should be a supply of fresh air to each and every person in the audience equal to at least 30 cubic feet per minute, or 1,800 cubic feet per hour. General Morin, in his well-known treatise on ventilation, suggests a supply of 1,200 to 1,500 cubic feet per person per hour. In a theatre of medium size, seating 1,000 persons, the former

allowance means an hourly supply of pure air of 1,800,000 cubic feet, and it will be obvious that it is not quite an easy problem to furnish and admit such vast volumes of air, particularly when introduced near the floor level, without causing air currents which may be unpleasantly felt by the theatre-goers. To warm this quantity of air in winter time, when the thermometer out-doors stands near the zero point, to about 68 degrees likewise means a good deal of expense for coal to the theatre manager. The system must therefore be carefully laid out and calculated to secure results which will be satisfactory to all concerned.

It is obvious, furthermore, that to introduce and to distribute evenly such large volumes in all parts of the audience hall, forced or mechanical ventilation, by means of fans or blowers, will be required. In the *plenum* system of ventilation draughts are avoided by forcing the pure warmed air into the auditorium under a slight pressure.

The fresh air may be introduced at the top of the house, through the ceiling, and made to move downward in a steady and uniform current, until it reaches the lungs of the spectators, and then removed at or near the floor line; or else air may be introduced at or near the bottom and exhausted at the ceiling of the hall. Much has been written about these two systems of *downward* and *upward* ventilation, and arguments in favor of both systems may be found in any good textbook on ventilation. To a certain extent, either one of the systems may be successfully planned and arranged; the plan and subdivision of the theatre building, the details of construction and local conditions will generally decide the question. Where a theatre is lighted with electric lights, the downward system of ventilation will show better results than where gas lights are used.

A good system of ventilation should effect a complete change of air three or four times an hour, and this change of air is required not only in the auditorium, but also for the foyers, the stage, the dressing rooms and toilets.

It is a fact that good ventilation improves the acoustic properties of a theatre. On the other hand, the question of ventilation should always be treated in connection with the question of safety from fire. To depend, for example, for the ventilation of the stage upon a strong current of air from the stage toward the auditorium would be a grave mistake. For, with such an arrangement, in case of a fire on the stage—and it is proven by statistics

that the majority of theatre fires have their origin on the stage—the smoke from the burning scene decorations, etc., would be drawn into the upper part of the auditorium and would suffocate numberless persons in the gallery before they could make their escape from the burning building. On the contrary, it would appear to me to be the aim to create, in such cases, a strong current from the auditorium in the direction toward the stage. Doubtless this can be efficiently accomplished, and one way of doing it is to provide large ventilators in the roof over the stage. With the stage cut off from the auditorium by a fireproof or fire-resisting curtain, of asbestos cloth, for instance, the audience would have plenty of time to escape unhurt, and repetitions of fire catastrophes, such as those of the Ring-Theatre in Vienna, and of Nizza, would become impossible.

Leaving aside, however, the question of fire, it seems but reasonable to require that the stage should have at all times thorough ventilation. The fumes incident to colored fires, the smoke due to burnt gunpowder, slight gas leaks and other stage odors should never be allowed to penetrate the auditorium. Whoever has been an eye-witness to the endless coughing or sneezing of the audience after such a battle scene as that presented recently at the New York Academy of Music in the play of "Shenandoah" will agree to my proposition that separate stage ventilation is extremely desirable.

There should be adequate actors' dressing room accommodation, and these likewise require to be efficiently ventilated, preferably by windows to the outer air, or by special vent shafts where windows are out of the question. Finally, all toilet rooms require a constant change of air and an abundant supply of fresh air to keep them sweet and wholesome. Special stress should be laid upon the necessity of arranging for a current of air from the halls into the toilet rooms, and not vice versa; for otherwise, however good the system of ventilation may work, unpleasant odors from the water-closets and urinals will penetrate other parts of the theatre.

The boiler and engine rooms should also have plenty of fresh air, and all building regulations provide that the vaults where gas meters are set must have suitable ventilation, to prevent explosions of gas.

V. Lighting.

In the matter of lighting, I have already pointed out that with the advent of the incandescent electric lights a new era in theatre sanitation has begun. Possibly some of those present here may remember the primitive methods in vogue years ago of lighting up the stage and auditorium of a theatre by means of tallow candles. Not only was this mode of illumination fraught with danger from fire, but the smoke and the greasy smell from the candle lights rendered actual enjoyment of a play impossible. A slight improvement was effected when oil lamps and Argand burners were substituted for the open candle flames; still the danger from fire was not lessened to any extent. The introduction of the gas light gave us increased illumination, but it also increased immeasurably the fire risk, particularly on the stage. The innumerable gas flames, both on the stage and in the auditorium, and the objectionable central chandelier in particular, created a powerful air contamination, so that good ventilation seemed almost out of the question. The electric light has not only rendered theatres vastly better and safer from the danger of a conflagration, but it has helped to solve, more than anything else, the question of theatre ventilation. Anyone may verify this statement by visiting successively one of the modern theatres lighted by electricity and one of the older theatres lighted only by gas flames. As a matter of safety, building regulations require for theatres two kinds of illumination, namely, electric lights for the auditorium and stage, and in the corridors, staircases, foyers and exits an auxiliary system of candle or oil lamps; but it is wisely required that these auxiliary lights be set in wall niches provided with separate ventilation to the outer air. Where two independent sources of the electric current can be had, the auxiliary system of lighting may consist of electric lights supplied from a current other than that which supplies the auditorium and the stage.

VI. General Sanitation.

Having now discussed the important requirements of drainage, plumbing, water supply, ventilation and lighting, it remains to speak briefly of some matters connected with general cleanliness in theatres. From what follows it will be seen that all measures tending to insure cleanliness will also help to improve the ventilation, by removing sources of air pollution, such as indoor dust,

accumulations of dirt and rubbish, slops and oily wastes, ill-kept plumbing fixtures, etc. At the same time, a due regard to these details of theatre management will render a theatre building in many respects safer from the danger of fire.

That the floors, walls, chairs and seats in a theatre building should be kept clean goes without saying; yet, in how many instances is the reverse true. All manner of rubbish and dirt should be removed from the theatre daily, both the stage floor and the entire auditorium should be swept and thoroughly dusted and cleaned out every morning. The dusting should be done in such a manner that the dust will not merely be floated into the air, to settle again upon the floor covering, the upholstery and the decorations.

The floors should be scrubbed and swept, and not made so wet as to smell murky and damp in the evening. Where possible, the hall should be flooded with outdoor air once a day. If some sunlight can be admitted, all the better, for I need not tell you that sunlight is a better disinfectant than any artificial or proprietary article, no matter how well advertised.

The dust accumulating in a theatre is a far more serious danger to health than most persons are apt to think. It is but necessary to contemplate for a moment the vast amount of outdoor dust and dirt carried daily and nightly into a theatre by the many hundreds of persons who go to see a play. This dirt clinging to the shoes is partly deposited in the floor carpets, and often, I regret to say, expectorations are added, which in the case of persons suffering from pulmonary troubles may be laden with the germs of tuberculosis. Unless the utmost care is exercised in sweeping out the floor and in dusting off the chairs and the upholstery, the finer particles are not removed, but continue to float about in the air and finally settle on the floor covering and in the plush of chairs, and are again stirred up when the new audience enters for another evening's enjoyment (?).

Little attention has been hitherto devoted to the question of suitable furniture and upholstering of audience halls. I am inclined to think that, as a sanitary measure of prevention, all plush upholstery and other material catching and holding dust, and all heavy hangings and decorations of the boxes, should be done away with in theatres. Chairs covered with leather would be far better, and doubtless other sanitary furniture coverings are available. As a safety measure against outbreaks of fire, the

decorations of the front of the boxes and of the proscenium opening are called for in building laws to be of fireproof material. The flatter such decorations are made, the better they are from a sanitary point of view, for they will not so easily catch or hold dust. Then there is the question of suitable, sanitary floor covering. I hold that carpets should not be tolerated. There are better, not more expensive, floor coverings, such as linoleum or the recently introduced interlocked rubber tile floor covering, which commend themselves to me as vast improvements over carpets. Handsome patterns of these new sanitary floor coverings may doubtless be obtained should a demand for them for audience halls arise; but, in any event, the question of decoration should, in my judgment, be subordinate to that of health. "*Salus publica suprema lex*" is an old saying which may be aptly applied to this entire question.

With such improved furniture and floor coverings, dusting, if done under the watchful eye of a special theatre inspector, would be freed from the ordinary ever-present dangers.

Let me add that the same person intrusted with the cleaning up of a theatre should be in charge of the proper maintenance of all toilet rooms, for here again eternal vigilance is the price of safety. Plumbing fixtures in a public place are too apt to be abused, no matter how well arranged, and frequent applications of soap, brush and hot water are necessary to keep the appliances free from odor.

In the matter of floor space allotted to each person in the audience there is also much room for improvement. The floor area for each person should be more generous, particularly in the gallery, the seats should be wider and made more comfortable, and above all there should be plenty of wide gangways and aisles, to secure a quick emptying of the house.

In conclusion, I must mention another matter of importance in which the theatre-going public is interested. I refer to the drinking water kept in water coolers and pitchers, or served recently in some theatres on neat trays to the patrons of the lower parts of the auditorium. The drinking water should be filtered by one of the few really germ-proof filters. These filters should be cleaned often, and occasionally sterilized. Where water is cooled by means of ice, it should be done in such a way that the melted ice will not mingle with the drinking water, for, as is well known, ice frequently contains organic impurities and

germs of disease, and it would be useless to first filter the water and to render the same afterward subject to pollution from impure ice.

Doubtless many of the points brought up in my paper contain nothing new to the learned members of this Association. I hope, however, that the paper will be the means of bringing about a free discussion, which will in the end surely result in benefit to the public, for there are hundreds of theatres and amusement halls in our cities and towns the sanitary arrangements of which are utterly bad and require a thorough remodeling.

AMERICAN PUBLIC HEALTH ASSOCIATION.

TWENTY-SIXTH ANNUAL MEETING.

Ottawa, Can., September 27-30, 1898.

ABSTRACT OF PROCEEDINGS.*

Second Day, September 28.—The Morning Session was promptly called to order by President Lindsley, at 9 o'clock.

Dr. Probst, the Secretary, reported from the Executive Committee an additional resolution, recommending the adoption of the Bertillon classification, as follows: *"Resolved,* That the Governments of the United States, Mexico and Canada be likewise requested to make this classification the basis of the mortality statistics of the census of 1900 and 1901." It was also resolved that the American Public Health Association approves the general principles and plan of procedure relative to the periodical revision of the Bertillon classification of causes of death as submitted by the Committee on Demography and Statistics in their sanitary relation. Another resolution read: "That commissions of three members be appointed by the President of the American Public Health Association at this meeting, subject to the approval of the Executive Committee, from each of the countries represented in the Association, to act jointly with each other and with similar commissions from other countries in the revision of the Bertillon classification of causes of death, and that said commission shall

* Continued from page 423.

be authorized to adopt such necessary rules, in conjunction with other countries associated in the work of revision, as shall be necessary for its successful conduct. They shall also report progress to this Association at each annual meeting, and this shall be continued until the work of revision is completed and their successors selected for the next periodical revision.

Prevention of Yellow Fever.

Dr. H. B. Horlbeck, Health Officer of Charleston, S. C., reported on "The Etiology of Yellow Fever." The report dealt with the work of the committee, of which Dr. Horlbeck was Chairman, since their appointment at the last meeting. They had conferred with President McKinley on the matter and were successful in having a committee appointed by Congress from the army and navy and civilian life, who have thoroughly investigated the disease as far as possible, and will continue to do so. The committee was continued, revised as follows: Drs. H. B. Horlbeck, of Charleston, S. C.; George M. Sternberg, Surgeon-General U. S. A.; A. H. Doty, New York; S. H. Durgin, Boston; R. D. Wilkinson, New Orleans; W. F. Blount, State Health Officer, and Mr. Josiah Hartzell, of Texas. Dr. Eduardo Liceaga, President Superior Board of Health, Mexico, member of the committee, reported separately. "There are," he said, "only two foci of epidemic yellow fever in the whole of the Gulf coast of Mexico, in the canton of Vera Cruz and in the northern part of the peninsula of Yucatan." This report was made (a year ago) before the Superior Board of Health had knowledge of the two cases observed in Campeche and before the appearance of the recent epidemic in Tampico. Dr. Liceaga declared that the sanitary authorities of Mexico have firmly resolved never to hide any case of transmissible disease that may come to their knowledge, and that they have determined that their official documents shall express the whole truth with regard to such diseases.

Prevention of Infant Mortality.

Dr. Ernest Wende, Health Officer, Buffalo, N. Y., presented the report of the Committee on the Cause and Prevention of Infant Mortality. The report stated that the committee's work had been unsatisfactory for several reasons, although instructive in certain features. Very few replies had been received to the thousands of circulars for information which had been sent out. The great fault in small places was the trouble caused by the

change of officers and the carelessness in the means of protecting the helpless. Vigilance regarding the milk and water supplies had done much to lessen mortality. Much satisfaction is found in the general condemnation, theoretically at least, of the long-tube, death-dealing nursing bottle. He thought that the committee should be continued, so as to be able to procure additional information. On resolution the committee was continued.

Dr. Suiter, New York, moved: "That in receiving and adopting the report of the Committee on the Causes and Prevention of Infantile mortality, this Association places itself on record in the following resolution: *Resolved,* That it is the sense of the American Public Health Association that all State, city and town health authorities and medical societies generally should exercise every possible effort to procure the enactment of laws in their respective cities, villages and towns to prohibit the sale of the so-called long rubber tube nursing bottles, as being a perniciously active agent in the causation of preventible disease of infancy of the most serious character."

Bovine Tuberculosis Curable.

"Some Observations from Practical Experience with Bovine Tuberculosis in New Hampshire" was the subject of a paper by Dr. Irving A. Watson, President of the State Board of Cattle Commissioners and Secretary of the State Board of Health. He submitted the following conclusions:

1. That it is impossible to eradicate bovine tuberculosis, but it may without inflicting too great a burden on the State be reduced to a degree that will subserve the interests of the stock raisers and likewise protect the public health.

2. That but a very small percentage of the animals infected with tuberculosis in any way endanger the public health, and that an indiscriminate slaughter of the cattle reacting to the tuberculin test is wholly unnecessary, inasmuch as many of them either recover or the disease is permanently arrested.

3. That a proper sanitary condition of stables and stable inclosures would do more toward preventing the spread of bovine tuberculosis than any other measure that could be adopted.

4. That the danger of infection from bovine tuberculosis may be reduced to very small proportions, if not wholly eradicated, by sanitary measures, inspections and physical examinations by the State, in co-operation with local authorities.

5. That such inspections, once inaugurated, could be maintained without an expense that would be burdensome to the State.

Dr. A. de Schweinitz, Chief of the Biochemic Division of the Bureau of Animal Industry, Washington, D. C., read a paper on "A Convenient Method of Staining Tubercle Bacilli."

Sir James Grant, M. D., of Ottawa, commended very strongly the propositions advanced by Dr. Watson.

Dr. Gibson, of Iowa, dissented as to the ability of veterinarians, however skilful and experienced, to recognize tuberculous cattle by mere physical examination, however thorough. He would quarantine a tuberculous cow reacting to the tuberculin test as he would a glandered horse. The slaughtering room is the only place for them.

Dr. Bracken, of Minnesota, deprecated the effect of Dr. Watson's paper as calculated to occasion loss of confidence in the tuberculin test.

Dr. Durgin said that we must have the people with us if we hope to succeed in sanitary work. In Massachusetts, radical and extreme measures had been found to defeat their object.

Dr. Woodward, Health Officer of the City of Washington, asked who were the people—the dairymen who sell, or the citizens who consume the milk? In Washington the people themselves demand the application of the tuberculin test.

After further remarks by Dr. Bryce, of Toronto, and Dr. de Schweinitz, of Washington, Dr. Watson closed the discussion, defending the propositions he had presented, and the Association then adjourned until Thursday morning, to accept the courtesies tendered by the City of Ottawa for the afternoon and evening.

At 12:30 o'clock the members, accompanied by their wives and members of the Citizens' Committee, boarded electric cars and were transferred to the village of Aylmer, on the shores of Lake Deschene, where the steamer was taken and a most delightful trip to the Chats Rapids enjoyed. The boat carried an orchestra, and as the magnificent steamer glided through the placid waters of that beautiful lake they rendered Canadian, American and Mexican patriotic airs in a delightful manner. The Mexican delegation who were in attendance at the convention enjoyed the pure Canadian atmosphere very much, and were loud in their praise of the beauties of the country. The boat went a distance of twenty-five miles, and then made the return trip, just as the

sun was sinking in the west. This sight was a most beautiful one, and the lovely purple tints of the Laurentian mountains were the admiration of all. Arriving at the Hotel Victoria a most elaborate banquet was partaken of, tendered by the citizens of Ottawa. Over two hundred were present, including Hon. Sidney Fisher, representing the Dominion Government; Eduardo Liceaga, representing Mexico, and Lieutenant-Colonel Charles Turner, United States Consul-General.

Thursday, September 29.—Morning Session, Dr. Benjamin Lee, First Vice-President, in the chair.

The Secretary reported, on behalf of the Executive Committee, the resolution of Dr. Wingate, of Milwaukee, Wis., that a special committee of five be appointed for the purpose of drafting a definition of the word "epidemic," with a recommendation that its report be adopted, and it was thereupon adopted. Respecting the resolution of Dr. Suiter, of Herkimer, N. Y., to procure the enactment of laws preventing the sale of long rubber tube nursing bottles, the Executive Committee reported that it considered such proposed action inexpedient, and recommended that the resolution be not passed, in which the Association concurred.

Dr. Franklin W. Wright, of New Haven, Conn., offered a resolution, which was referred to the Executive Committee, to consider the feasibility of issuing instead of an annual volume of transactions a monthly periodical devoted to sanitary science.

Dr. Henry D. Holton, of Brattleboro, Vt., Treasurer, presented his annual report, showing a balance of cash on hand of $1,223.03.

The first paper on the programme for the day was one by Dr. Manuel Septien, of Queretaro, Mexico, entitled "Compulsory Vaccination Ought To Be Imposed as a Paramount Necessity," and at the request of the writer it was read by Dr. Cabara, of Fall River, Mass.

Dr. Septien regretted the apathy that seemed to prevail on this subject. It is just one century, he said, since the immortal Jenner announced to the world the most important discovery registered in the annals of medicine; that which undoubtedly has saved the greatest number of lives. Smallpox was in centuries past the most terrible scourge that afflicted the human race. It alone accounted for 10 per cent. of the total mortality, leaving on the victims it could not carry away the marks of its passage stamped, in an indelible manner, on the whole surface of their bodies. But

neither the people nor the governments have known how to take advantage of the immense good which vaccine is capable of producing. Smallpox ought to have disappeared long ago from all civilized countries, and everybody ought to carry on their arms, as a shield, those everlasting stigmas which vaccination leaves, as a seal printed by the solicitude and paternal care of the enlightened governments, whose lot it is to watch and care for the lives and health of the people, as they are the greatest blessings that man can enjoy here on earth. Its practice, however, has been and is still repulsed in the last years of this century of light, even by the peoples most advanced in civilization. In England itself—who would believe it!—there are societies, such as the "Anti-Vaccination Society," "Peculiar People" and others, who have for their object the opposing of vaccination. In this very country, lower Canada, a great and popular movement was started a few years ago, headed by several distinguished medical men, rejecting vaccination. The occurrence of several serious cases of vaccinal ulcerations, probably of syphilitic origin, was the cause of this agitation, which had for consequence such a lamentable end. Compulsory vaccination could not be carried out from the year 1876, till in 1884 and 1885 such a strong epidemic broke out that in nine months, in the city of Montreal alone, thousands were attacked by smallpox, and causing the death of 3,500 persons in nine months. Probably this is one of the most notable examples, in these latter years, of the rapid spread of smallpox. The ground was already prepared, and the only thing wanting was the sowing of the seed; a Pullman car conductor arriving from Chicago, where he had contracted the disease, was the vehicle of infection. Smallpox, with rare exceptions, only attacks those who have not been vaccinated. Nor in the most severe epidemics had it ever been seen that the doctors, nurses, or the persons in attendance on the sick had been infected, provided they had been well vaccinated. Let us hope that the disease of smallpox will disappear very soon and forever; that which may be considered the most terrible of diseases, because it is the most mortiferous, cruel, and the most loathsome. The unfortunate that is not killed by it is left with the face and the body covered with the most horrible scars; and in many cases it destroys the sight and even the hearing. He proposed a petition to the three governments represented in this Association to provide more energetic laws than existing

ones, making vaccination obligatory and inflicting severe penalties for their evasion.

Dr. J. H. Schrader, of Iowa City, Iowa, Second Vice-President of the Association, said that in Iowa all children, before admission to the public schools, were required to present marks of vaccination. It is held that the State cannot pass a law compelling an individual to submit to the operation, as trenching upon the liberty of the person, but the board claims it has the right to establish this rule, and it has been in practice for years.

Dr. Curtis, of Albany, N. Y., said that every member of this Association knows the name of Elisha Harris and remembers his earnest interest in this matter, and that one of his efforts was directed toward obtaining virus from the Jennerian Society with the view of antagonizing the charge as to the danger of inflicting other grievous injury from the use of impure virus.

Dr. Patterson, of Winnipeg, Man., doubted whether the courts of any civilized nation will uphold compulsory legislation. Vaccination is a disease, and it is doubtful whether you have a right to inflict a disease upon an unwilling person. School boards, however, can adopt the regulation that children who do not present evidences of protection against smallpox should not be admitted.

Dr. Gehrmann, of Chicago, insisted that the results of Jennerian virus can be obtained by modern improved methods—glycerized lymph destroys foreign bacteria and the resultant vesicle is a true "pearl on the roseleaf."

Dr. Jones, of Baltimore, said that in July last two cases of smallpox were brought into that city from Germany. Their companions were vaccinated and developed such bad arms that the tubes used were carefully examined, and in these and many other points large numbers of pus corpuscles were discovered.

The report of the committee on "Demography and Vital Statistics in Their Sanitary Relation" was then presented by the Chairman, Dr. Cressy L. Wilbur, of Lansing, Mich., Chief of the Division of Vital Statistics of the Department of State.

The resolutions embodied in the committee's report having already been adopted on the recommendation of the Executive Committee, to whom they had been referred, the committee was by vote continued.

Dr. José Ramirez, General Secretary of the Superior Board of Health of the Republic of Mexico, then read a paper entitled "Ought We to Reopen the Leper Asylums?"

"Leprosy is still," he said, "scattered throughout the world. As its origin is not of a telluric character, we can understand how it invades climates of widely different character. It is a disease exclusively confined to man, of a bacterian character, contagious, and one that respects no race whatever." He then alluded to the disappearance and reappearance of the disease in various countries, making the disease serve as a thermometer to indicate the degree of hygiene of different people. "These facts lead us to a comforting conclusion: That leprosy, an incurable disease, can be suppressed in civilized countries by means that are within the reach of the sanitary authorities. An empiric observation of some centuries has perfectly demonstrated the contagious character of leprosy (still denied by some physicians); and the arbitrary measures that up to the middle ages were employed to prevent this fearful contagion proved by their positive results that these observations were correct—that is to say: That the isolation of the lepers was the most certain method of preventing the appearance of fresh cases." The disease, the doctor thinks, is not hereditary. The long accepted theory that children inherit the disease from contaminated parents has been disproved, and this fact holds out greater hope for the future, besides allowing sanitary precautions to be softened, so that in due time measures may be adopted for preventing contagion. It was a fortunate fact that in the greater part of South America leprosy had gradually disappeared. "Leprosy has very rarely been found in Canada, although well-established cases have been seen. In the United States there are a few small foci, which are especially found in Louisiana, Texas, California, Minnesota and Oregon, but the recent annexation of the Sandwich Islands places the nation in an especial condition to at once undertake measures of defence against that immense focus of leprosy which is so well known and is so dangerous.

"In Mexico we also have leprosy scattered in different States. We, therefore, find that Canada, on account of the British colonies of India, the United States, on account of the foci in its own territory and the recent annexation of the Sandwich Islands, as well as Mexico, on account of the numerous foci which it contains, are three nations which ought to come to an agreement with the view to taking steps against the propagation and for the establishment of uniform measures of prevention as far as

is permitted by the special conditions of each country. The character of these measures is a subject that undoubtedly will give rise to a great deal of discussion. At the end of the century we can not and ought not to put into practice the ostracism to which lepers were formerly condemned. Now, when we know that contagion is something tangible and not a subtle gas or impalpable emanation; now, when we have at our disposal means for preventing its propagation, now is the time for us to study the most adequate means in accordance with our knowledge, to fight the disease with greater success. There can be no doubt that these humane sentiments inspired the governments that convened the international conference for the study of leprosy, which met in Berlin during the year 1897. This conference, attended by the most competent specialists of the world, and starting from the principle of the incurable character of leprosy, passed resolutions directed to the prevention of the propagation of the disease."

The deductions are as follows:

1. In countries where leprosy forms foci, or has great extension, isolation furnishes the best means of preventing the spread of the disease.

2. The system of obligatory notification, observation and isolation, as carried out in Norway, is recommended to all nations with local self-government and a sufficient number of physicians.

3. It must be left to the administrative authorities, after consultation with the medical authorities, to take such special measures are as applicable to the special social conditions of the districts.

Dr. Henry M. Bracken, Secretary of the State Board of Health of Minnesota, read a paper on "Leprosy in Minnesota and the Northwest."

He questioned the accuracy of the statements in Allbert's System of Medicine respecting the Norwegian leper of Minnesota, Wisconsin and Dakota, and said we have knowledge of fifty-one lepers having resided in Minnesota, seventeen of whom had died before 1890. Twenty-one is probably the highest number of lepers known to have been living in this State in any one year (1893). At present thirteen are known to be living there. Dr. Bracken drew special attention to a few facts emphasized by his tables and records:

1. The impression that leprous immigrants from the Scandi-

navian peninsula are all from Norway is a wrong one. Five of eleven recorded in 1897-8 were from Sweden.

2. The feeling that we can quarantine lepers by watching immigrants is an unsafe one. The family history of all immigrants from a country where leprosy prevails should be secured before they are allowed to embark for America, and no member of a leprous family should be permitted to land upon our shores.

3. It appears that the conditions antagonistic to the spread of leprosy are also opposed to sterility, as borne out by the families of our lepers who have children, as shown by the following numbers: Five, five; six, six; four, six; four, five.

4. It is possible for leprosy to die out in certain favored sections, as Minnesota, without segregation, provided the importation of lepers is discontinued.

5. Even in Minnesota one has but to visit lepers to feel that segregation should be insisted upon in all cases. Entering a filthy house and seeing a leprous mother, careless in her habits, it is evident the children are not safe.

6. Segregation in single States is not practicable, since it would only drive lepers from States enforcing it to those not doing so.

7. A federal home should be provided for these unfortunates where they could be cared for more economically and satisfactorily than through any State's provisions.

8. In spite of all precautions there will be some leprous individuals in this part of the world for many years to come.

9. The Scandinavian peninsula does not furnish all the leprous individuals found in the United States.

The discussion on the papers of Drs. Ramierez and Bracken was very animated. Dr. Henry B. Horlbeck, Health Officer of Charleston, S. C., urged the establishment of a Federal leper home on one of the islands on the southern Atlantic coast of the United States.

Dr. Wilkinson, of New Orleans, said that the State of Louisiana had already rented a tract of land in that State and established a leper home, admission to which was not made compulsory, but where they went willingly. They cultivated the land, so that the home was almost self-supporting. The leper wants occupation. He did not think the Atlantic coast islands the preferable site, on account of the gales to which they were subject.

M. W. Boardman, of Ottawa, of the Department of Agriculture, described the Dominion Government's Lazaretto at Tracadie, N. B., where he said there were a year ago twenty inmates, sixteen of these males, the youngest eleven and the oldest sixty-one. Four are in the early stage, ten were advanced, and six far toward the end. There were nine deaths in the year, all having been enfeebled by *grippe*. Eight new cases have been admitted, four from Manitoba. All, including the Icelandic parties, seem surprisingly contented. There is seldom any difficulty in the absence of a law enforcing segregation in removing those affected. When a man is declared leprous by the inspector of leprosy, his neighbors and those giving employment shun him, and he is glad to avail himself of the comforts of the lepers' home. The Lazaretto at Tracadie is fulfilling its object, that of segregation, in the most satisfactory manner.

Dr. Lee, of Philadelphia, said that of the two plans, isolation recommended by the author of the first paper, and segregation by the second, he was decidedly of the opinion that segregation was the proper course. His opinion was concurred in by Dr. Burroughs, of Abbeville, N. C., Dr. Gibson, of Iowa, and Dr. Patterson, of Manitoba.

Dr. Jones, of Baltimore, instanced the single leper, who is so great a trouble and expense to the health office of that city, that it illustrates the necessity for the national government to establish a home where similar cases can be segregated.

Dr. Durgin, of Boston, said that a leper is so dreaded, and the facilities for their care so lacking, that cases are hidden away as long as possible. He has one case who requires a special nurse and all the paraphernalia of a hospital, who ought properly to be in some home.

Dr. Horlbeck, of Charleston, S. C., offered a resolution, which was referred to the Executive Committee, that the American Public Health Association call the attention of the government to the presence of leprosy in the country, and urge the necessity of establishing a home where sufferers from this disease can be segregated and given proper care.

Dr. Crosby Gray, Health Officer of Pittsburg, Pa., related the case of a native Pittsburger, who contracted leprosy in Para, Brazil, ten years ago, and finally returned to his home sick. He entered a hospital, where the case was diagnosed as leprosy, and

he was surreptitiously removed. He is now in a separate building in the hospital grounds, under the care of a nurse at two and a half dollars a day, making his maintenance rather an expensive luxury.

Dr. George H. Rohé, former Health Officer of Baltimore, Md., deprecated the sanitary shrieking and hysterics excited by this disease, and said he would just as soon treat a case of it in a general hospital as any other. In fact, it is less dangerous than syphilis. Nevertheless, he believed it would be wise to have a home established where the leprous could be comfortably domiciled and properly cared for.

Dr. Breña, of Zacatecas, Mexico, said if this resolution accomplishes its purpose, it will alone be sufficient to justify this meeting. He would rather die of diphtheria than live neglected like a leper.

The report of the Committee on Sanitation, with Special Reference to Drainage, Plumbing and Ventilation of Public and Private Buildings, was presented by the Chairman, Mr. J. W. Hughes, of Montreal.

Afternoon Session.—Dr. Benjamin Lee, First Vice-President, in the chair.

The first paper read was by Mr. J. W. Hughes, of Montreal, entitled "The Intercepting Trap in Private Sewers," supplemental to his committee report, and which adjournment prevented being read therewith. He unhesitatingly condemns the fitting of the intercepting trap in private sewers. Minute investigation has "shown that when a main intercepting trap was used that it not only modified the speed and partly obstructed the flow of sewage, but it prevented any of the air carried down by the soil and other waste water pipes from discharging into the street sewer, where its aerating functions are so necessary to commence the purification of the sewage in the drains and assisting in preventing sewer gases generating in the sewers." It has also been shown "that when the main intercepting trap is omitted there is a superior and self-cleansing flow of sewage, and that large volumes of air pass forward to the street sewer, creating a healthy atmosphere and circulation of air down the soil pipe, through which the fluid is passing, and up other soil pipes that are at the time standing idle." Mr. Hughes said that his observation had led him to believe that in houses in which there was an absence of sewer pipes

having obstructing traps there was freedom from odors and diseases that could be traced to sewer gas poisoning, while on the other hand those cities which had adopted the principle of interception traps were often quite the reverse, and of disease a great deal was found among the inhabitants who happened to live in the modern-built houses, where the obstruction system had been installed; "and this in spite of the fact that the same towns often spend large sums of money in flushing the drains and artificially ventilating the street sewers, a thing which is never necessary if the sewers are laid down properly and the right, unobstructed system is adopted."

Dr. S. H. Durgin, Health Officer of Boston, Mass., contended that bad gas fittings are more dangerous to health than bad plumbing. He said that better regulations are needed to insure the proper fittings to prevent the escape of illuminating gas. He claimed that there is no scientific basis for considering sewer gas an active poison or a serious source of danger to human life. On the other hand, he said illuminating gas contains a most active and deadly poison. No deaths are reported as resulting from sewer gas poison, but many are reported as caused by illuminating gas. In the last five years, 169 deaths from it have occurred in Boston. He said the medical profession believed that many deaths were caused by slow poison from illuminating gas, but they were not so entered in the public records. Health officers, he insisted, should pay as much attention and teach the danger from coal and illuminating gases circulating in the atmosphere of houses as they do the danger of the escape of sewer gas. In 1897 an act of the Legislature of Massachusetts was obtained which requires all persons who desire to engage in or work in the business of gas-fitting in the city of Boston, either as an employer or journeyman, to be examined by a board established for that purpose, and if found competent, to receive a license as a master or journeyman gasfitter. The act authorized the Board of Health and Building Commissioner to make and enforce regulations for all materials used and work performed in gas-piping and gas-fitting; provided for the appointment of a corps of inspectors, who examine for approval all new work in construction and repairs; authorizes the Board of Health to inspect the gas fixtures and appliances in any building, and to make such requirements relating thereto as it deems the public health requires, and the owner of such building must comply with such requirements.

As a result of an investigation, it was found that 89 per cent. of Boston's houses showed from two to eleven leaks in each house. Out of 153 houses examined 137 had defective pipes, and only 16 were found absolutely free from defects.

The discussion was further participated in by Dr. Chapin, of Rhode Island, who inquired if any deaths were positively known to be caused by leaking gas pipes; by Dr. Schwartz, Secretary of the State Board of Health of Rhode Island; by Medical Director Gihon, U. S. N., who asked Mr. Hughes if he believed that gas leakage could ever be attributed to fire holes in old gas pipes concealed between floors and ceilings or inside walls, to which Mr. Hughes replied that in thirty years' experience he had never known an instance of perforated pipes, but that leakage was always from imperfect connections; by Dr. Wright, of Connecticut; by Dr. Woodward, of Washington, D. C., and by Dr. Mitchell, of New Jersey.

Dr. F. X. Valade, Chief Analyst, of Ottawa, Ont., read a paper on "The Administration of the Adulteration Act in Canada."

He reviewed the Dominion act in regard to adulterated foods, etc., and said that the analytical department is now in good working order. Each district has its analyst and the analysts are supplied with samples of food products by food inspectors. The samples are analyzed and the results with the names of the persons from whom they are obtained announced. He spoke of the adulterations of milk and said that grave results followed the adulteration of this staple article of food. Lead poisoning results, he said, from the use of lead in the manufacture of house utensils, and in tins used to preserve foods. Rouge is often adulterated with lead, and as it is in a condition to be easily assimilated, lead palsy results from the use of the rouge.

He considered the combination rubber and tin stoppers used in bottles containing carbonated waters most dangerous. The most dangerous and shameful adulterations are the following: Coffee is adulterated by the process of washing, coloring and drying off in centrifugal machines with sawdust; the furrows of the berries become filled with wood powder, making them a fine white. Weak milk is richly colored with annatto, saffron, turmeric and marigold flowers. Saffron is adulterated with coal tar. Coal tar is adulterated with 75 per cent. of sodium chloride, and here the chain ends, for salt is too cheap to require adulteration.

Cayenne is sometimes too hot; red ochre, venetian red or brick dust corrects that, and a little salt to make it tasty completes the trick. Honey and cocoa are adulterated; oleomargarine is palmed off after being colored with azo dyes and orange red. Musk deer sacs are often opened and filled with stones, bits of metal and brown earth.

Dr. Juan Breña, of Zacatecas, Mexico, presented "Rough Notes on the Etiology of Typhus Fever." It was an admirable and exhaustive inquiry into the subject, emphasizing the value of sanitary considerations in preventing the development and spread of this disease. As the individual who cultivates cleanliness of person and dress, tranquillity of mind and, in a word, devotion to the Goddess Hygeia, bears within himself a shield which protects him to a certain extent from infection, so do collective bodies of individuals who enjoy air, light, abundance of water, a fair amount of sunshine, good drainage, etc., represent ground but little fertile for the development of typhus. It would be well if we could accept the theory which attributes the generation of that fever which from time to time plunges us, especially in Mexico, into mourning to the stagnation of organic matter in a state of putrefaction or to that train of misfortunes following on poverty."

The report of the Committee on Car Sanitation was presented by the Chairman, Prof. S. H. Woodbridge, of Boston, Mass., which was read by Dr. J. N. Hurty, of Indiana. Prof. Woodbridge's report attracted the closest attention of the members for its admirable presentation of the subject of heating and ventilation of railway cars, and was an unusually acceptable communication, as the information given was in effect the record of a victory won by this Association through this committee after a number of years' work, in inducing several of the big railroads in the United States to adopt sanitary arrangements in the running of their cars. Letters from various railroad officials were given, stating their intention to reconstruct all their cars so that cleanliness would be a most important feature. The author referred to sanitary precautions already adopted by the railroads in Indiana, where the interiors are so constructed as to prevent as much as possible dust lying in the spaces in the cars. He outlined two systems of ventilation in use on two United States railroads. In the Pennsylvania Railway system of ventilation of cars, air is

drawn from outside the car through ducts, is then passed over steam radiators between the floors and then introduced into the car under the seats. This avoids warming over and over the dead air in the car. The bad air goes out through openings in the roof. The Big Four Railway system of car ventilation is to draw out the bad air from near the floor through ducts between windows in the walls of the car. Pure air is introduced from outside by ducts with filters at the ends of the coaches. This pure air is warmed as it enters by being passed over steam pipes. The Big Four Railway officially promises to hereafter construct all passenger cars according to the latest sanitary requirements. The thorough system of cleaning and disinfection of cars by the Big Four was warmly approved by the writer.

Dr. Gregorio Mendizabal, of the City of Mexico, read a paper on "Diseases of the Skin and of the Hairy Scalp, Which Are Commonly Transmitted by Contagion at Schools; Ways of Preventing It." After paying tribute to the benefits that mankind has already received through following the wise counsels of hygiene, the author suggested, respecting the prevention of communicable dermatosis, that medical inspectors for schools should be appointed and children be required to furnish clean bills of health before they are admitted to schools. Inspection should be extended to private schools. The parents of poorer children should be furnished with remedies to cure their diseased children. The diseases he had found most frequently are psoriasis, scurf, tricophicies, fabus, all shown to be transmissible and repugnant and dirty, although not fatal.

The remainder of the afternoon and up to a late hour was entirely occupied with the subject of "Disinfection and Disinfectants," beginning with a preliminary report of the Committee on Disinfectants by its Chairman, Prof. Franklin C. Robinson, of Bowdoin College, Brunswick, Me., followed by papers on "Methods of Testing Disinfectants," by Dr. Wyatt Johnson, Montreal; Dr. F. G. Novy, Lansing, Mich.; Dr. Hibbard W. Hill, Boston, Mass.; "Methods of Using Disinfectants:" *In Cities,* Dr. Adolph Ghermann, Chicago; *In Hospitals,* Dr. J. J. McKenzie, Toronto, Ont.; Dr. Charles D. Smith, Portland, Me.; *In Quarantine Work,* Dr. F. Montizambert, General Superintendent of Quarantine of the Dominion of Canada.

The lateness of the time prevented discussion of this most inter-

esting and valuable group of papers, which fitly concluded one of the most successful day's work in the history of the Association.

A resolution offered to create a special committee to secure co-operation in bacteriologic investigations in the three countries represented in the Association was referred to the Executive Committee.

Fourth Day—Friday, September 30, 1898.

Morning session, 10 a. m., the President, Prof. Charles A. Lindsley, in the chair.

After the final announcement by the Chairman of the local Committee of Arrangements, Dr. John Sweetland, of Ottawa, of post-adjournment courtesies tendered by the Minister of Agriculture of the Dominion Government, the Secretary, Dr. Probst, presented the final report of the Executive Committee, recommending:

1. The adoption of Dr. Horlbeck's resolution to urge the establishment by the national government of a leper-house.

2. The appointment of a special committee, as suggested by Dr. Wyatt Johnson, of Montreal, for co-operation in bacteriologic investigation by colleges, individuals and committees engaged in this work.

3. The continuance of the Committee on Public Health Legislation, of which Dr. Henry P. Walcott, President of the State Board of Health of Massachusetts, is Chairman; that it be urged and required to make every possible effort to promote the purpose for which it was created; and that the American Public Health Association hereby reaffirms its opinions of the advisability and necessity for the establishment of a National Board or Bureau of Health in the United States.

4. The adoption of the resolution of Dr. Wright proposing a special committee of five, consisting of the President, Secretary, Treasurer and two others, to consider the advisability of substituting for the annual volume of transactions a monthly or other periodical devoted to sanitary matters; in all which the Association by vote concurred.

On motion of Dr. Suiter, of Herkimer, N. Y., the Association reconsidered its action of yesterday declaring it inexpedient to adopt the resolution offered by him advising State, municipal and town authorities to enact laws interdicting the sale of long rubber

tube nursing bottles, and upon his modification of his resolution making it expressive of the opinion of the Association that the long rubber tube nursing bottle was a positive menace to the health and the cause of much mortality of infants, it was unanimously adopted. It was explained on the part of the Executive Committee that its former action in declining to recommend the effort to obtain legislation was because of the belief of its members that no educated physician would permit, and no intelligent and competent mother use, one of these bottles, which the veriest tyro in sanitation could not but condemn; but as its action had been misunderstood, as was shown by conspicuous headlines in the newspapers announcing that "the Association had shut down on the effort to abolish the rubber tube nursing bottle," and that "the rubber tube bottle had gained a victory over its opponents," and lest these assertions, if uncontradicted, might be taken advantage of for advertising purposes by the unscrupulous makers of these bottles, it was considered proper that the Association should assert, notwithstanding the elementary and self-evident nature of the proposition, its unanimous condemnation of their use. As an evidence of the universality of this use, Dr. Wende, the Health Officer of Buffalo, who has succeeded in making their sale impossible or punishable in that city, exhibited three long tube bottles which he had bought in the first three drug stores in Ottawa at which he had applied for them.

Medical Director Gihon, U. S. N., read a letter he had just received from Dr. Jésus E. Monjarás, President of the Council of Health of San Luis Potosi, regretting his enforced non-attendance at the meeting by reason of a recent domestic bereavement.

On motion of Dr. Gihon, the Secretary was directed to telegraph on the part of the Association to Dr. James F. Hibberd, of Richmond, Ind., one of its oldest, most zealous and most honored members, its sincere sympathy and regret that he had been prevented by illness from being present as he had invariably been at previous meetings.

On motion of Dr. Durgin, of Boston, Mr. Mitchell, of New Jersey, was appointed to draft a suitable memorial expressive of the regret of the Association at the recent death of Dr. J. Berrien Lindsley, of Nashville, Tenn., an original member and the long-time Treasurer of this Association, and to place on record in its Transactions its appreciation of his personal character and dis-

interested and zealous service in the work of this Association and the cause of sanitation.

Dr. Irving A. Watson, of Concord, N. H., Chairman of the Auditing Committee, reported that careful examination of the accounts of the Treasurer showed that they were correct in every respect.

Dr. Crosby Gray, of Pittsburg, Pa., Secretary of the Advisory Committee, reported the following nominations for officers of the Association for the year 1898-99:

For President—Dr. George H. Rohé, of Baltimore, Md.

For Vice-President—Dr. Jésus E. Monjarás, of San Luis Potosi, Mexico.

For Secretary—Dr. Charles O. Probst, of Columbus, O.

For Treasurer—Dr. Henry D. Holton, of Brattleboro, Vt.

For Elective Members of the Executive Committee—For two years, Dr. H. M. Bracken, of Minneapolis, Minn.; Dr. Irving A. Watson, of Concord, N. H.; Dr. Franklin W. Wright, of New Haven, Conn.; to fill a vacancy for one year, Dr. Gregorio Medizabal, of the City of Mexico, Mexico.

The Advisory Council recommended that the twenty-seventh annual meeting shall be held at Minneapolis, Minn. All which was by vote of the Association unanimously adopted and the officers unanimously elected. The President then announced the names of chairmen and members of committees, of which there are twenty-one.

Papers on "The Diptera from a Hygienic Point of View," by Dr. Ramon Ramirez, of Mexico, D. F., and on "The Spread of Typhoid and Dysenteric Diseases by Flies," by Dr. M. A. Veeder, of Lyons, N. Y., were then read, and discussed by Dr. Gardner T. Schwartz, of Providence, R. I., and Dr. J. N. Hurty, of Indianapolis, Ind., who related an instance within his own experience of the spread of dysentery at Tipton, Ind., from a patient whose injecta, it was discovered on subsequent investigation, had been thrown into the back yard, and where the only possible hypothesis as to the spread of the dysentery was that it had been propagated by flies, which were then especially numerous. The views of the authors of the papers, Drs. Ramirez and Veeder, were quite in accord with the reputed opinion of the military committee of investigation appointed by our ex-President, Surgeon-General Sternberg, U. S. A., Majors Vaughan, Shakespeare and Reed,

who are alleged to have declared flies largely responsible for the distribution of typhoid germs in our military camps.

The following reports of special committees were then presented and read: Report of the Committee on Transportation of Diseased Tissues by Mail, presented by the Chairman, Dr. E. P. Lachapelle, President Provincial Board of Health, P. Q.; report of the committee to consider and report upon some method of international arrangement for protection against the transmission of infectious diseases, presented by Dr. Frederick Montizambert, Chairman, General Superintendent of Quarantine of the Dominion of Canada; report of the Committee on Animal Diseases and Animal Food, presented by D. E. Salmon, D. V. M., Chairman, Chief of Bureau of Animal Industry, Department of Agriculture, Washington, D. C.; report of the Committee on the Duties and Responsibilities of the Healthy Man for His Own and Others' Health, presented by the Chairman, Dr. Charles N. Hewitt, Red Wing, Minn.; report of the Committee on Public Health Legislation, presented on the part of the Chairman, Dr. Henry P. Walcott, President of the State Board of Health of Massachusetts, by Dr. U. O. B. Wingate, Secretary of State Board of Health of Wisconsin.

The following papers were then presented: "An Epidemic of Diphtheria Traced to an Infected Milk Supply," by Dr. Benjamin Lee, Health Officer of Philadelphia, Pa.; "Preventive Antirabic Inoculation Service in Mexico," by Dr. Eduardo Liceaga, President Superior Board of Health, City of Mexico; "Report of Some of the Most Important Papers Presented at the Fourth Congress of Tuberculosis, held in Paris, July 27 to August 4, 1898," by Dr. E. A. de Schweinitz, Director Biochemic Laboratory, Bureau of Animal Industry, Washington, D. C.; "The Sanitary Treatment of Inebriates," by Dr. A. M. Rosebrugh, Secretary Prisoners' Aid Association, Toronto, Ont.; "Garbage Reduction by Steam," by Dr. M. A. Veeder, Lyons, N. Y., and Mr. J. L. Richards, Sanitary Engineer, Elizabeth, N. J.; the last eliciting discussion by Dr. de Schweinitz, of Washington, D. C.; Dr. Probst, of Columbus, O., and Mr. Rudolph Hering, C. E., of New York City.

The customary resolutions of thanks were then adopted for courtesies received from the Dominion Government, especially the Hon. Sidney Fisher, Minister of Agriculture; the Mayor, municipal officers and citizens of Ottawa; the indefatigable Chairman,

Dr. John Sweetland, and his associates on the local Committee of Arrangements; the ladies of Ottawa, the proprietor of the Russell House, the railroad officials and the members of the press.

The two senior ex-Presidents, Medical Director Gihon, U. S. N., and Dr. Durgin, of Boston, were then appointed to conduct the President-elect, Dr. George H. Rohé, of Baltimore, to the chair, and after appropriate remarks by himself and the retiring President, the latter declared the Association adjourned to meet at Minneapolis at such time in November, 1899, as the Executive Committee may appoint, thus concluding one more of the successful and satisfactory assemblies of this flourishing body. The majority of the members remained after the formal adjournment to attend a garden party at the Experimental Farm tendered by the Minister of Agriculture, Hon. Sidney Fisher, and voluntarily added another day to their sojourn in this attractive and hospitable capital city of the Dominion, where besides the courtesies of the government and municipal authorities they were treated to a week of the most delightful weather conceivable. The unparalleled invigorating climate determined the American and Mexican members, who contemplate attending the third Pan-American Medical Congress at Caracas, Venezuela, to insist that Ottawa shall be the site of the fourth.

NATIONAL QUARANTINE.

THE CAFFERY BILL FULLY DISCUSSED AND ENDORSED.

At a quarantine conference held in New Orleans November 1, 1898, the chairman stated that the meeting had been called for the purpose of hearing the report of the sub-committee outlining the policy of the conference and discussing and passing upon its recommendations.

The following report of the sub-committee was then read:

"The committee appointed to recommend a plan for the amelioration of quarantine evils recently existing beg leave to report as follows:

"We recommend that the national government, through the Marine Hospital Service, assume sole control of yellow fever. First, in the prevention of its importation; second, if imported, to

exercise complete supervision so as to avoid its further infection and consequent conflict of interstate and local authority.

"Believing that the objects may be attained by the enactment into law of the measure now before Congress known as the Caffery bill, we urge its adoption and request the Senators and Representatives from the State of Louisiana to advocate it, with such amendments as may in the judgment of the conference be considered proper and wise.

"A conference on quarantine having been called to meet at Memphis, Tenn., on November 17, 18 and 19, and the co-operation of this city invited, we recommend that a representative delegation be appointed by the Mayor to attend.

"Recognizing that sanitation is a valuable requisite to insure healthfulness, we most urgently recommend that vigorous measures be adopted by the proper authorities to provide an adequate sewerage system for this city. Respectfully submitted,

"W. A. POLLOCK, Chairman."

Mr. Lafaye moved that the report be received and that the recommendations contained therein be adopted. In offering the motion Mr. Lafaye took occasion to animadvert upon the difficulties the sub-commitee had to contend with in compiling the report and in reaching a definite conclusion. He also referred to the experience of the people of New Orleans during the past two years and the incalculable loss sustained by her merchants through a system of quarantine operated by neighboring States and communities to the detriment of New Orleans and for selfish and mercenary motives. The idea was to prevent a repetition of this sort of thing in the future. The mild type of sickness prevailing here during the summer had been magnified by sister States into the proportions of a veritable pestilence and every advantage possible taken in opposition to the business welfare of this city. It was with the knowledge of these facts that the sub-committee were influenced in the direction of national legislation as the only recourse against the evils of the existing quarantine system in other States. He did not think the national government would deal unjustly with a sister State, and believed that it should and ought to be urged to deal with the situation.

Dr. Souchon, President of the Louisiana State Board of Health, n being invited to address the conference, said he was an educa- or, if anything. He believed in the influence of education and nat education would do a great deal more than legislation in the

matter under consideration. He did not believe, however, that education would do it all, especially where commerce was concerned. He was opposed to turning over to the Federal government all matters of quarantine, although he was in favor of interstate quarantine. In other words, he was in favor of supervision by Federal officers. He did not believe that anyone would take better care of our affairs than we ourselves would; not even the Marine Hospital Service.

Dr. Souchon then read the following paper which he had prepared upon the subject:

QUARANTINES—EDUCATION AND NATIONAL LEGISLATION.

Land quarantine is a question of education by demonstration more than one of coercion and legislation. A national board without punitive powers would be a derision. With punitive powers enforced it would be abhorred, not enforced it would be a contemptible farce. It is the cross and the pen that have educated and civilized the world, not the sword and the gun. No legislation, no army can enforce the Atlanta regulations; no persuasion, neither; nothing but education by practical demonstration will accomplish it. How will legislation force any State to receive passengers and freight from a locality when she does not want to receive them for the fear of taking the yellow fever? Any attempt to force this upon them would surely bring on civil war. Political, religious and social strifes have been subdued by sword and fire, but it is questionable whether a people panic-stricken by the insane fear of so-called pestilence could be coerced at all by the whole army and navy of the United States.

History teaches how unwise it is to try to legislate in advance of the spirit of the people. Some great men in powerful autocratic nations have attempted it with apparent temporary success, but as soon as death released the hand of iron the people returned with amazing rapidity to their former state. Ill-fated Spain stands as one of the grandest examples of the kind.

Americans are quickly educated because they have a keen sense of right and wrong, but for that very reason they will resent force most quickly and to the very last drop of their blood, especially the impulsive Southern people. This is quite in contrast with the people of the old country, where most of the people, from long oppression, can be coerced in doing almost anything. They will resent and rebel only at the very last extremity.

Again I say it is by practical actions that the people will be reassured and educated and not by agreements and persuasions based on words, assurances or legislation. To demonstrate practically to the people that all possible care is effectually taken to prevent yellow fever from reaching them is the best and only argument they should yield to.

When hundreds of men from an infected locality are turned out of a detention camp into clean localities without infecting them, that is a practical demonstration that will do the good that an army corps of United States regulars will not accomplish.

When carloads of freight are carried from an infected town into other localities without carrying sickness, it accomplishes more to gain the confidence and good will of the people than two or more army corps would do. The Southern States, I think, are not prepared to give up their manhood to any other organization. They feel that they have the brains and the will to manage their own affairs of health. The national government should come in to assist them to fight pestilence as it would to fight an invading army from a neighboring frontier. We should no more turn over our police powers to the general government than we should turn over our militia without strict reservations. It should bear most of the expense, because the fight is for the general good of all. No section of this great country can stand afflictions without the balance suffering also, though to a less degree.

I am a grateful friend and admirer of the United States Marine Hospital Service, and I would be sorry to see it renounce its present exalted position of education for that of coercion. The United States Marine Hospital Service occupies the true and most envious position. It is neutral, disinterested, impartial. Its legitimate role is that of supervision, assistance, co-operation. It wields a moral and spiritual power greater than any physical power, any Draconian legislation might give it. It is looked up to by all for advice, guidance and protection. If it is armed with physical powers to compel the enforcement of regulations and of laws, immediately will it lose its prestige, and will be fought by all as a common enemy. It is on a pedestal, honored and beloved by a grateful people for the immense good it has done. It is a messenger of peace between the clashing interests and passions. The contending parties will listen to it when they would not begin to listen to each other.

The improvement this year upon last year is immense all along the lines. The lessons of this year will go far to cure the genuine fears of the fever, and the localities still rejecting the Atlanta regulations for commercial reasons will be shamed into adopting them when it is demonstrated to the world that tons of freight and thousands of people were passed through without carrying disease under the folds of the Atlanta regulations. The Atlanta regulations are the gospel of the new crusade of reason and enlightenment, and the United States Marine Hospital Service men the most welcome missionaries in its propagation. However, the Atlanta regulations should be revised and improved. No one realized this better than myself, who wrote them with the invaluable assistance of Dr. H. R. Carter. The work was then done hurriedly, because time was pressing and we had to accept that or have nothing reasonable and practical.

Rayne, La., is a most beautiful example of the result of education. Whereas last year she would suffer no train to go through even with windows down, and at full speed, going to the extreme of tearing up tracks and burning bridges, this year she has laid down the gun and the torch for the Atlanta regulations, and is peaceably and cheerfully doing her share in the noble work of common good. Another educational point is that the parishes adjoining New Orleans have voluntarily petitioned the State Board to hold communication with the city at the cost of being themselves quarantined by the balance of the State. It was granted to them—Plaquemines, St. Bernard, St. Tammany, St. Charles, Jefferson (right bank), St. John the Baptist.

Again, the city itself has been free from panic, and no exodus took place.

Towns and parishes must also organize their Boards of Health and be prepared at a moment's notice to repair to any locality where a slightly suspicious case exists and care for it according to the most approved modern methods, as shown by the printed instructions of the Louisiana State Board of Health, as set forth in the pamphlets entitled "Instructions to Medical Inspectors and to Health Officers for the Management of Yellow Fever."

The Marine Hospital should also have a Southern States Department, thoroughly and systematically organized in its three great departments: The merciful assistance of the sick, the quick handling of the freight, and the management of the detention

camps. All this should be so planned in all its details that upon the first outbreak or alarm the whole machinery would set to work like a mobilized army. The people must also be educated to recognize that the virulence of the disease is much diminished, and to the fact that its diagnosis and treatment have contributed materially to the decrease of the death-rate.

The people must realize also the gigantic strides made by the modern scientific methods in the diagnosis of the disease and its treatment, and especially in the unlimited powers of antisepsis in the controlling of the disease, if but applied at the beginning of each case. They must understand that, although isolation and detention are valuable adjuncts, the sheet anchor is the antisepsis; that is, the destruction of the germs as fast as they leave the body of the patient through excretions of all sorts, and before they turn into dust and infect the room, then the house and then the neighborhood. The results demonstrated in the Isolation Hospital in New Orleans in 1897 sounded a gladdening peal of relief and assurance in the hearts of all. There the citizens threatened to burn and actually began to burn down the Beauregard School, which it had been decided to turn into a yellow fever hospital. They said that it would be a pest house that would infect all the neighborhood. And yet the final results proved, to the amazement of all, that not a single case in the neighborhood had come from it, but that within its own walls no case developed among any of the Sisters, nurses and attendants, although several were non-immunes. This was also the case with the Touro Infirmary and the Hotel Dieu.

The mortality in the City of New Orleans in 1897 was 298, or about one to 1,000 inhabitants, regardless of the number of cases of fever. It is less than for the grippe, scarlet fever or typhoid.

The yellow fever of to-day is not the yellow fever of old times. It is now so comparatively mild that it stands to old yellow fever like varioloid stands to variola or smallpox. It should be called yellowoid, not yellow fever.

It is such object lessons that will carry conviction, assurance and obedience, and not legislation and coercion.

It is less than for scarlet fever, influenza, grippe and typhoid fever.

The yellow fever should be attacked at its origin. The most
nediately applicable methods should be at once resorted to.

This consists in erecting disinfecting plants at the ports of

departure, similar in every respect to the one at the Mississippi River Quarantine Station.

All vessels going to the United States, north or south, should be compelled to first stop at the station to be thoroughly disinfected, as is done at the Mississippi River Quarantine Station. Then each day of the voyage should count as a day of detention, and when the ship arrives at a quarantine station without having developed sickness on board she should be allowed to proceed without further disinfection or detention.

Vessels going north should be also subject to this treatment, because, with the rapid means of travel, persons can leave an infected port for a United States northern port and then come to a southern locality in a very few days. Besides, he may carry the germs of the disease in his baggage even if he himself be an immune, and that is why the baggage should be disinfected.

Then the fever ports themselves must be thoroughly sanitary in their tidal currents, their wharves, their sewerage, drainage, paving, garbage removal and water supply, etc. All this, the latter especially, will be very difficult to accomplish unless the United States enforces its influence, not by conquest and annexation, but by protectorates, thereby accomplishing for this hemisphere what Great Britain and Russia have done for Asia, pacify with its strong arm all the local and fighting factions, setting them down to work and to produce and to trade with us, and teach them self-government. To our mind the true historic role of our great country is the redemption of these beautiful countries from the crushing effects of a long domination of ignorance, fanaticism and tyranny.

However, national legislation is needed for two things: First, to compel localities to allow through trains to go through their territory under regulations to localities beyond which are willing to receive them; second, to compel each maritime quarantine station to have a resident Federal inspector or supervisor, who will report at once to proper authorities all violations of the quarantine and sanitary regulations.

Dr. Souchon then read this resume of the Caffery bill.

RESUME OF THE SALIENT POINTS OF THE CAFFERY BILL IN PLAIN LANGUAGE.

Section 3. The Secretary of the Treasury shall make such rules and regulations as are necessary to prevent the introduction

into the United States of any contagious disease from any foreign port or place (without consulting the State).

He may appoint a national quarantine officer whenever he deems it necessary, and no vessel, vehicle or person shall be admitted to entry or enter without a certificate of said officer that the United States quarantine regulations have been complied with.

National quarantine stations now in operation shall be conducted in accordance with the provisions of this act.

The Secretary of the Treasury shall make rules and regulations to prevent the introduction of infectious diseases into one State, etc., into another State, etc.

Those rules shall be enforced by the sanitary authorities of the States and municipalities.

If they fail or refuse to enforce them, the President of the United States shall execute and enforce them.

Whenever yellow fever, etc., has gained entrance into any State, etc., the quarantine regulations of the United States to prevent the spread from one State into another State, etc., shall be supreme and have precedence over State or municipal rules and regulations.

The President is authorized to enforce the same, and to control the movement of vessels, railroad trains, vehicles or persons so as to prevent the disease from spreading from a State, etc., to another State, and to prevent unnecessary restrictions upon interstate commerce.

Conclusions:

1. The United States have control of the maritime quarantine stations, but not possession of the buildings.

2. The United States have control over interstate quarantines.

3. The United States have also control over interstate quarantines if they choose to so construe the law.

Discussion followed, showing but little difference of opinion.

Mr. John M. Parker said he had an overwhelming confidence in the Federal government in its integrity and in the ability and sincerity of those who administered its affairs. He was satisfied that the officers of the government could be depended upon to do whatever lay in their power to prevent the introduction of disease into a community, and, having appeared, would do everything possible to stamp it out. And this view of the subject was now being largely shared by representative people in our sister

States, who had become disgusted with the chaotic and anarchistic condition of things prevalent during the past two years in the South regarding yellow fever. He was heartily in favor of the report of the sub-committee, and hoped the Mayor would appoint the delegates called for to attend the convention to be held in Memphis on the 17th instant.

Mr. Sam Blum said an idea prevailed that the adoption of the Caffery bill would greatly interfere with and jeopardize commerce. In his judgment it was the only measure that would rectify existing evils. An objection, however, he would urge against the bill in its present shape was placing in the hands of the Secretary of the Treasury the sole power to execute the law. He favored the elimination from the measure of this feature and would suggest an amendment placing that power elsewhere. With this single objection, the bill was all that could be desired and the only practical solution of a difficult proposition.

Mr. J. S. Seymour favored national quarantine, and in this convention took occasion to say that old prejudices upon the subject were rapidly disappearing among the representative citizens of other States and communities, and read a number of letters from business people of Texas evincing a decided sentiment in favor of the Federal government administering the quarantine service of the country.

Mr. J. Watts Kearney had nothing to add to what had already been said touching the adoption of a national quarantine system. He believed that the Marine Hospital authorities, being disinterested, could reconcile all existing differences between communities, and that they could and would give a most thorough and satisfactory quarantine service. He recognized that the education of the people of sister States was the main point to be accomplished, for, after all, there was no law capable of regulating or controlling a panic-stricken community. No force could deter such a people from tearing up tracks if they did not want trains to pass through. Under the Atlanta agreement much had been done toward securing a more liberal movement of freight, and as for himself he experienced very little trouble in this respect this year as compared with the year previous. Of course, he would except Texas, which was relentless throughout.

Mr. Redden said that at the last meeting of the Credit Men's Association a committee was appointed to look into the Caffery

bill, and he was asked to obtain the opinions of leading citizens regarding it. Quite a number of letters were received, expressing a variety of views. He thought the situation called for a stronger measure than education just at this time, and provision should be made for possible emergencies. It had been stated in a letter that by the 1st of June next year certain localities would quarantine against New Orleans, thus closing it out from the world and its commerce. This would have to be prevented. If we were going to be shut up at all we might as well be shut up by the national as by a local quarantine. He believed in the integrity and justice of Federal government officials, and was satisfied that under their protection no serious harm could come to us. He was in favor of the sub-committee's report.

Mr. Lafaye's motion to adopt the report of the sub-committee, as given above, was put and unanimously adopted.

The meeting then adjourned, subject to the action of the Mayor in appointing the delegates to the Memphis convention.

TO-MORROW, didst thou say?
Methought I heard Horatio say, To-Morrow!
Go to—I will not hear of it To-morrow!
'Tis a sharper who stakes his penny
Against thy plenty—who takes the ready cash,
And pays thee naught but Wishes, Hopes, and Promises,
The currency of idiots. Injurious bankrupt,
That guls the easy creditor! To-morrow!
It is a period nowhere to be found
In all the hoary registers of Time,
Unless perchance in the fool's calender.
Wisdom disclaims the word, nor holds society
With those that own it. No, my Horatio,
'Tis Fancy's child, and Folly is the father:
Wrought on such stuff as dreams are; and baseless
As the fantastic visions of the Evening.

—*Colton.*

THE MEDALS, JETONS AND TOKENS ILLUSTRATIVE OF SANITATION.*

By Dr. H. R. Storer, Newport, R. I.

XV. *Hospitals.*

Canada.

London, Ontario.

2856. Obverse. Within chased circle, bust, crowned, to left. In front of it, an upright olive branch. Upon shoulder: P. W. Ellis & Co. Toronto Beneath: Diamond | Registered | Jubilee Inscription upon the ornamented border: 1837 - Victoria - 1897 Exergue, upon a scroll: Queen | And | Empress Reverse. Beneath a locomotive and tender for crest, a shield bearing two sheaves, chevron and beaver, and supported by a moose and bear standing upon a scroll, upon which: Labore Et Perseverantia Under the shield, incused: P W Ellis & Co Beneath all, crossed branches of maple, tied by ribbon. Inscription: Victoria Hospital. | . London Canada . Aluminum. 24.34mm. Storer, *loc. cit.*, April, 1898, No. 1242. In my collection, through Mr. R. W. McLachlan, of Montreal.

Montreal.

I am now enable to give the following:

(1896.) Obverse. View of the building, cornerwise, with trees at left. Inscription: Montreal | General Hospital. Reverse. Field blank. Inscription: Training School For Nurses. Exergue: rosette, flanked at sides by three dots. Gold, silver, white metal. 15.23mm. Dies now broken. Storer, *loc. cit.*, 1892, No. 277. In my collection.

2857. Obverse as preceding, save that though the building is given, the trees are wanting. Reverse. Within a wreath of laurel leaves: Training School (curved) | For | Nurses Gold, white metal. 15.23mm. *Ibid.*, Jan., 1895, No. 799. I have impressions from Mr. R. W. McLachlan, of Montreal.

Ottawa.

2858. Obverse. A chain of crowns, intersected by bunches of roses, shamrocks, and thistles, enclosing the Stanley arms; an

* Continued from page 447.

eagle to left, standing upon a child lying on a cap. Inscription: The Lady Stanley Institute | (rosette) Ottawa (rosette) Reverse. Within field: Graduated Inscription: Training School For Nurses Exergue: a rosette between two dots. Silver, bronze, white metal. 19.29mm. Edges beaded. *Ibid.*, No. 797. I have impressions from Mr. McLachlan.

South America.

Brazil.

Besides Nos. 1572 and 1897, of the Hospital Da Santa Casa Da Misericordia, there is a third:

2859. Obverse. A female erect and facing, protects with outspread mantle a group of eight adults and children. Exergue: three arrows with band, a crown, and cross, supporting two shields and laurel and jasmine branches, all united by ribbon. Reverse. Within crossed laurel and jasmine branches tied by ribbon: Ao | Benemerito Irmao | Da Santa Casa | Da Misericordia | Do Rio De Janeiro | Militao Maximo | De Sousa | Barao De Andarahy |-| 1878 Bronze. 47.73mm. Meili, Die auf das Kaiserreich Brazilien bezüglichen Medaillen, 1890, p. 21, No. 206, pl. XXXIV; Storer, *loc. cit.*, July, 1891, No. 189.

Peru. 1884.

2860. Obverse. Within a beaded circle and below a radiant star: Con L'Obolo Degli | Italiani Nel Peru | Auspice | La Societa Di Beneficenza | Italiana | Di Lima Inscription: Matrina Cssa. Ynes Canevaro: Patrino Mse. D. Pappalepore. Reverse. Within a beaded circle, the Italian crowned shield, around which: Per La Fondazione Del Nuovo Ospedale Italiano* | In Lima Il XIV° Anniversario Del | * 20 Settembre * (the year [1870] is omitted). Silver, bronze. 24.37mm. *Ibid.*, Oct., 1895, No. 196. In my collection.

The United States.

2861. Obverse. Within a beaded oval, a cross with floreated tips. Legend: Blessed+Are+The+Merciful. Reverse. Within a similar oval, field filled with small reticulated crosses. Inscription: +Guild+Of+St. Barnabas (across field) | For +1866+Nurses Bronze. 15x18. 23x28mm. With loop. *Ibid.*, April, 1894, No. 721. In my collection. The English medal of this guild will be described hereafter.

Massachusetts.

2862. Obverse. An anchor, whose shaft is a Latin cross. Across it a band, with legend: Fides Spes Beneath, crossed oak branches. Inscription: Waltham (Mass.) Training School For Nurses. | ·:· Estd 1885 ·:· Reverse blank. Edges milled. *Ibid.*, Oct., 1894, No. 767.

Missouri.

2863. Obverse. Bust, to left. Beneath shoulder: C. Kunze. Fec. No inscription. Reverse. Within field: Sisters of Charity | S. Pollak-E.M. Senseney | N. B. Carson - J. P. Boyson - L. L. McCabe - E. H. La Barge | E. Y. Tupper - A. W. Olcott | T. A. Glasgow - E. H. Gregory Jr. | C. A. Kuhn (engraved). Inscription: Presented to Dr. E(lisha) H. Gregory By The Staff Of The St. Louis Hospital On The Fiftieth Anniversary Of His Medical Career.* Gold (but one struck), tin (but two struck, one of which is in the Disbrow collection and the other in that of the engraver, Mr. Kunze). In these latter, the field is vacant. *Ibid.*, Jan., 1896, No. 934.

New Jersey.

2864. Obverse. Newark City | 50 | Dispensary Reverse similar. Celluloid. Square. 23.35mm. The numbers run from one to fifty. I have impressions from Dr. Disbrow. *Ibid.*, April, 1898, No. 1246.

2865. Obverse. A Greek cross with trifoliate tips, bearing circular band of white enamel, with effect of the Geneva cross. Upon the band: Hospital Of St Barnabas | Newark Reverse blank. Gold, with pin attachment. Worn by the nurses. *Ibid.*, July, 1898, No. 1276. I owe description to Dr. Disbrow.

New York. Brooklyn.

2866. Obverse. The building. Beneath base: R. Herrmann Sc. No inscription. Reverse. Zur | Erinnerung | An | Die | Grundsteinlegung | Des | Deutschen Hospitals | Brooklyn, 22 Octobr. | 1894 Aluminum. 24.37mm. *Ibid.*, Oct., 1895, No. 908. In my collection.

2867. Obverse. Within circle, the staff of Æsculapius, upright, but reversed. Inscription: Long Island College Hospital Exergue: a hand, to left, with scalpel. Reverse. Within circle: To |-| For Best | Surgical Clinical | Report | Of A Case In The | Hospital Dept. Inscription: Dudley Memorial Medal Exergue: a burning antique lamp. Gold, bronze. 24.38mm. *Ibid.*, April, 1894, No. 719. In the Hunt collection and my own.

New York City.

2868. Obverse. Within field, in relief: M T S (Mills Training School for Nurses) in monogram. Above, upon a curved band: Bellevue (Hospital). Exergue: 1891 Reverse blank. Gold. Geneva cross shaped. 14x14. 20x20mm. *Ibid.*, Oct., 1893, No. 643. I owe a drawing to the makers, Messrs Black, Starr and Frost, of New York. Founded by Mr. D. O. Mills, President of Bellevue Hospital Medical College.

2869. Obverse. The book of life, lamp of knowledge, and laurel branch. Inscription: Hornthal Medal. Reverse. Awarded To For Maintaining Ward Discipline With Gentle Care of Patients. | M. S. T. S. (Mt. Sinai Training School) For Nurses | 1894. Silver. 20.30mm. *Ibid.*, Oct., 1894, No. 766. Founded by Mr. Larry M. Hornthal, a director of the Hospital. I owe description to Dr. Alfred Meyer, of New York.

2870. Obverse. Bust, to right. At right, below: V. D. Brenner N. Y. Behind, perpendicularly: William Avgvstvs Mvhlenberg D. D. In front, perpendicularly: Fovnder of St. Lvke's | Hospital. Reverse. At right, crossed branches, long and short, of palm and oak, tied by ribbon curved above and below toward left. Upon them, in curved quadrilateral, the seal of the hospital (No. 1562) in depressed field of which, St. Luke, half length, pointing to a tablet. Within general field: The American | Numismatic And Archeological | Society | Commemorates By This Medal | The Opening Of The New | St. Luke's Hospital | MDCCCXCVI Gold (one, presented to the hospital); silver (ten); bronze (eighty-nine, presented to the trustees of the hospital, the presentation committee of the society, and to kindred societies). 32.50mm. Dies destroyed. *Ibid.*, April, 1897, No. 1119; Proc. Am. Num. & Arch. Society, 1897, p. 46, fig. In collection of the Newport Historical Society, and my own, the gifts of Mr. A. C. Zabriskie, President of the New York society and founder of the medal.

2871. Obverse. Within circle, the Geneva cross, red enamel on white field. Inscription, in blue enamel border: Society For The First Aid To The Injured Reverse blank, save John Frick |—N. Y.—(incused). Silver. 15.23mm. Storer, *loc. cit.*, April 1898, No. 1249. I have drawings from Dr. Disbrow.

Pennsylvania.

Hospital, University of Pennsylvania, Nurses' Training School.

See under Mil. and Naval Hygiene, England (Florence Nightingale).

Rhode Island.

2872. Obverse. Within a wreath, the Geneva cross, red enamelled. Reverse blank. Gold, suspended from an irregular bar, upon which, in black: Ich Dien (I serve). *Ibid.*, Oct., 1894, No. 768. Communicated to me by Dr. George F. Keene, physician to the State Institutions of Rhode Island.

Texas.

2873. Obverse. Building. Inscription: The Natatorio-Sanitarium. Exergue: Waco. Texas Reverse. Building. Inscription: The Texas Cotton Palace. Exergue: Waco. Texas. Aluminum. 24.38mm. *Ibid.*, April, 1898, No. 1250. Communicated to me by Dr. B. P. Wright, of Utica, N. Y.

England.

Brighton.

2874. Obverse. Building. Beneath: Ottley-Medallist-Birmingham Inscription: Brighthelmston Dispensary | Founded | MDCCCIX | Rebuilt MDCCCXLIX Reverse. Upon crossed branches of laurel and palm, a shield bearing two dolphins, to left. Beneath: The Foundation Stone Of | This Building Was Laid By | The Earl Of Chichester | The President | March 1st, 1849 | It Was Opened Janry. 21st. 1850 |-.-| First Meeting Of Governors | March 14th, 1850 |-.-| Herbert Williams Archt. | G. G. Cheesman Buildr. Tin. 33.53mm. Edges raised, finely milled. *Ibid.*, April, 1896, No. 997. In my collection.

Bristol.

2875. Obverse. Within circular field, coat of arms. Inscription: Suple Prize Medal Exergue: 1849 Reverse. Within depressed circular field, crossed laurel branches tied by ribbon, enclosing: First | In Medicine or: First | In Surgery, with recipient's name and date, engraved. Inscription: Bristol Royal Infirmary Gold (value five guineas). 23.38mm. *Ibid.*, July, 1897, No. 1144. The founder, Mr. Robert Suple, was a starch manufacturer in Bristol. I am indebted for wax impressions to Dr. Arthur B. Prowse, Dean of the Royal Infirmary.

2876. Obverse. Within curved quadrilateral, the hospital arms, incorporated with those of Bristol (ship and castle). At sides: 17-32 Inscription: Bristol . General . Hospital Reverse.

Within wreath of laurel leaves: Committee | Medal Gold, silver. 22.36mm. *Ibid.*, July, 1897, No. 1145. I owe wax impressions to Prof. E. Markham Skerritt, Dean of University College, Bristol.

Greenwich.

For the second medal of the school connected with the hospital for the children of the naval pensioners, see No. 2715.

Liverpool.

2877. Obverse. Front of building. Beneath: Established | Ann: Dom: 1834 Inscription: The Royal Infirmary Medical School Liverpool. Reverse. Crossed laurel branches. Below: — | & Jacob | Liverpool (no letter or name before the &, merely a plain dash.) Bronze. 30.48mm. *Ibid.*, Oct., 1895, No. 912. In the Government and Disbrow collections and my own.

2878. Obverse. Bust, facing and to right. Inscription: Liverpool Royal Infirmary School of Medicine |. Harvey. Reverse. Within laurel branches tied by ribbon, in lower field: For | Anatomy & | Physiology Gold. 24.27mm. *Ibid.*, Oct., 1897, No. 1179. I owe rubbings to the Dean, Prof. Patterson.

2879. Obverse. The building. Beneath: Halliday F. Legend: Of The Most High Cometh Healing Exergue: New Infirmary Liverpool Reverse. This | Medal | Intended To Aid The Funds | Of The | Liverpool Infirmary | Is Respectfully Dedicated | To The | Ladies Patronesses | Of The | Charity | By The Publisher | Thos. Woolfield | Bazaar | Church Street | Sep. 1831 White metal. 31.49mm. Wroth, Num. Chronicle, 3d Ser., VI, 1896, p. 320; Storer, *loc. cit.*, April, 1896, and Jan., 1898, No. 1001. Dr. Weber, of London, has kindly obtained for me its description from the specimen in the British Museum.

London.

2880. Obverse. The hospital. Beneath, to right: B. Wyon Sc. Inscription: Charing Cross Hospital | London Exergue: The staff of Æsculapius. Beneath: Founded 1818 Reverse. Within laurel branches tied by ribbon: -|- Inscription: Schola Medicinæ Palmam Præclarior Aufert Bronze. 34.53mm. Edges beaded. *Ibid.*, Oct., 1895, No. 913. In my collection.

2881. Obverse. Within a double rope line, a Maltese cross, with beads upon the eight corners and fleurs-de-lis in the angles. Around centre, between the two circles: Charing Cross Hospital Reverse blank. With ring. *Ibid.*, July, 1896, No. 1020. For the nurses at the hospital. I owe description to Dr. F. P. Weber, of London.

2882. Obverse. Arms. Inscription: School of Medicine London Hospital. Reverse. Bay wreath. Bronze. 24.38mm. *Ibid.*, Oct., 1893, No. 917. In the Government collection.

2883. Obverse. The hospital. Beneath: Founded 1740 To right: B. Wyon S. Inscription: Presented By The Governors Of | The London Hospital Reverse. Crossed laurel branches, enclosing the staff of Æsculapius. *Ibid.*, No. 918. Bronze. 23.35mm. In my collection.

2884. Obverse. A Latin cross, with crown above. Upon it: M A in monogram. Inscription: Founded 1881 Mary-Adelaide Nurses At top and bottom, a small Maltese cross. Reverse blank. Bronze. Pointed oval. *Ibid.*, July, 1896, No. 1030.

2885. Obverse. The Geneva cross, in red enamel, with gold edges. Upon it, in gold, within a white enamel circle: Nurses Co-operation London. Reverse blank. 27.43mm. *Ibid.*, No. 1032.

2886. Obverse. Beneath a crown, surmounted by a cross: H C in monogram. Inscription: H. R. H. Princess (Helena?) Christian Trained Nurses Reverse blank. Silver. 25.38mm. *Ibid.*, No. 1033.

2887. Obverse. Beneath a crown: V I R (Victoria Imperatrix Regina) in monogram. Inscription: Queen Victoria's Jubilee Institute For Nurses | 1887 Reverse blank. Gold, silver, bronze. Pointed oval. *Ibid.*, No. 1034.

2888. Obverse. Upon a circle, a Maltese cross; between the extremities a thistle, rose, shamrock and leek. Upon the cross, a crown. Around it, in a circle: Royal British Nurses Assocn. Reverse blank. A cross bar attached, upon which: Stedfast & True Gold, silver, gold and silver, bronze. 20.32mm. *Ibid.*, No. 1036.

Besides No. 1584, there is the following:

2889. Obverse. Arms; a heart-shaped shield, upon which a lion holding an oval, bearing R. F. H. Inscription: Royal Free Hospital | London. Reverse. Presented to | | For The Highest Number | Of Marks | Gained At | The Nurses' Examination Gold. 18.28mm. *Ibid.*, No. 1038.

2890. Obverse. A Maltese cross, within which B C H in monogram. Reverse blank. Silver. 35.55mm. *Ibid.*, No. 1048.

2891. Obverse. A saint, erect. Inscription: Guild of Saint Barnabas | Son of Consolation Reverse. The Virgin seated, with the dead Christ on her knees. In background, a cross. Inscription: Inasmuch As Ye Have Done It Unto The Least Of

These My Brethren Ye Have Done It Unto Me Bronze. Oval. 20x27. 30x42mm. *Ibid.*, No. 1049.

The American medal of this guild has already been described, No. 2861.

2892. Obverse. A female, erect. Inscription in Greek (?) Reverse. To Sister Mackey In Appreciation Of Special Service From Nov. 1890 To April 1891 From Sir Morell Mackenzie. Silver. Irregular oval. *Ibid.*, No. 1050.

Besides the medals of St. Bartholomew's Hospital previously described, see Nos. 2647-8. (Dr. Sir Wm. Lawrence.)

Manchester.

2893. As No. 1545 (Infirmary and Lunatic Hospital), save that A in exergue is further from the base of the field. In both, beneath base, at left, there is: T W (Thomas Wyon). Tin. 28.43mm. *Ibid.*, Oct., 1896, No. 1070. In the Government and Disbrow collections, and my own.

Southampton.

2894. Obverse. Busts of Victoria and Prince Albert. Reverse. Building. (Royal South Hants Infirmary, 1884.) Tin. *Ibid.*, No. 1072. I have failed as yet to obtain its full description.

Ireland.

There is a medal in silver, by Halliday of Birmingham, of King's Hospital, Oxmantown. It is not, however, a medical institution, I am informed by Dr. Frazer, of Dublin, but a school for the sons of the freemen of the city. It is in the Disbrow collection.

Holland.

Amsterdam. Deaf-Mute Association.

2895. Obverse. Within a beaded oval, a shield bearing three St. Andrew's crosses above each other (the city arms). The central portion of dark blue enamel, the lateral portions of red. Inscription: Doofstommen Vereeniging Exergue: "Guyot" Reverse blank. Silver. Oval. 15x24. 24x28mm. With loop, upon whose sides the jeweller's mark, incused. In my collection.

The preceding should also be mentioned in connection with Nos. 1552 and 2092.

Leeuwarden.

2896. Obverse. Elaborate coat of arms, with legend: Tan. Sub. Teg Tut Inscription: Largimur Cui Et Quantum Fas Est

Exergue: Nil Præclarius Auxil: | Quam Ferre Ruenti | Tradere Paup: Victum | Mis: Que Mederi Reverse. The hospital. Upon ground, at left: E. A. Inscription: Quid Deorum Dignius Est Solio Exergue: Gerot(rophium): Diac(oniæ): Civ(itatis): Leov(ardiæ): Con(ditum): | MDCCLVIII Silver. 24.39mm. Van Loon, *loc. cit.*, No. 344. I have impressions from Dr. Brettauer, of Trieste.

Utrecht. Children's Hospital.

2897. Obverse. A sick child in bed, to left, with medicines, etc., at side. Reverse. Above a mass of flowers, "Puss-in-boots," a Chinese and a Dutch girl supporting cartouche, upon which: Poppen | Tentoonstelling (The Exhibition of Dolls) | 1889. Gold, silver, bronze, composition. 31.49mm. I owe the description to Dr. J. J. B. Vermyne, of New Bedford. The proceeds of the exhibition were given to the hospital.

Belgium.

Alost.

2898. 1862. To Corneille Evit, president of the hospices. Bronze. 35.55mm. Communicated to me by Mr. C. Dupriez, of Brussels.

Biache. Saint Vaast.

2899. Obverse. An infant in cradle, watched by a reading boy. Reverse. Within beaded circle, coat of arms. Inscription: Asile St. Charles Fondé A Biache St. Vaast Par Louis Mesdach De Ter Kiele (followed by angel's head, the mint mark of Brussels). By Ch. Wurden. Revue belge de num., XXXIII., 1877, p 153, fig.

Brussels.

2900. Similar in character to No. 2083, but on reverse: Suppression Du Tour Des Enfants Trouvés (etc.) (1860.) 32.50mm. *Ibid.*, XXXIX, 1883, p. 89, No. 135.

Ghent.

2901. Obverse. St. Elizabeth of Hungary, with crown and sceptre, and an invalid. No inscription. Reverse. Infirm . | S | Elysabeth | In | Ghendt | 1682. Tin. 32.50mm. Minard, *loc. cit.*, p. 392, No. 55. Communicated to me by Dr. Brettauer.

Wavre.

2902. Obverse. A priest, attending an invalid. In background a building, inscribed: Hopital. Above, a portion of a blazing sun bearing the Hebrew word Jehovah. Reverse. In field an escutch-

eon upon which three hearts. Inscription, incused: A V VénérabLe DaVIDts. La VILLe De WaVre ReConnaIssante. (The chronogram gives 1838.) Bronze. 44.70mm. Rim milled. Guioth, Hist. num. Belgique, p. 20, No. L, pl. 8. The Abbé Davidts endeavored to establish a hospital at Wavre, but so great was the opposition that he was transferred to St. Germain à Tirlemont.

FRANCE.

Bordeaux. Hôpital St. André.

2903. Obverse. Bust of Hippocrates, to right. Beneath: J.B.J. Constant Inscription: Chef De Service Médical Reverse. Building, with portico, facing toward left. Inscription: Hopital De St. André Exergue: Bordeaux Silver. Octagonal. 20.33 mm. In my collection.

Charenton, St. Maurice. Asylum for the Insane.

2904. Obverse. Head, oak wreathed, to left. Beneath: Barre F. Inscription: Louis Philippe I. - Roi Des Français. Reverse. La Maison Royale | De Charenton Reconstruite |-| La Première Pierre | A Eté Posée La 3 Octobre 1838 | Louis Philippe Régnant | Mr. Le Cte De Montalivet | Pair De Frce. Ministre De L'Interieur | Mr. Vatout | Administr. Des Monums. Publics | Mr. Gilbert Architecte Bronze. 33.52mm. In my collection.

Paris. Administration Générale.

2905. Obverse. Bust, to left. Beneath: E. Parochon Inscription: Hippocrate-De Cos Reverse. A pelican feeding three young. Inscription: Administration Générale De L'Assistance Publique Exergue: *Paris* Silver. 22.34mm. Storer, Medals of Natural Scientists, p. 24, No. 42. Jeton de presence of the Jurys de Concours. In the Government collection and my own.

2906. Obverse. A female (Benevolence) entrusts to another (Public Aid) a sick infant and girl (Suffering Humanity). Beneath, to right: O. Roty. Inscription: La · Bienfaisance · Confie- L'Hvmanite · Sovffrante · A L'Assistance · Pvbliqve · Reverse. A mountain side, with valley to right. Below centre of field a label, with holes at ends for suspension, upon which: Epreuve D'Auteur Below, inclined upwards to right: Fraternité To right of this, also inclined: Solidarité Inscription: Assistance · Pvbliqve · En · France | - - - Svbstitver | A · L'Avmone · Qvi· Degrade · L'Assistance · | Qvi · Fortifie - - - | Victor Hvgo. Silver. 43.69mm. I have rubbings from Dr. Brettauer, of Trieste.

2907. Obverse. Within laurel wreath: Administration De L'Assistance Publique A Paris. Reverse. Within laurel wreath:

Concours Des Prix De L'Internat En Médecine - Ire Division - Prix: Berger (Paul) 1871. Gold. 24.40mm. I owe the description to a recipient, Prof. Paul Berger, of Paris. It is conferred on the first successful candidate for the concours.

2908. As preceding, but upon reverse Prix is replaced by Accessit. Silver. 24.40mm. I have this description also from Dr. Berger. It is for the second successful candidate.

2909. Obverse. Within laurel wreath: Temoignage De Satisfaction. Beneath, the date and name of recipient. Reverse, within similar wreath: Administration De L'Assistance Publique A Paris. Bronze. 32.50mm. I have description from Dr. Berger. For both externes and internes who have completed their service.

2910. Obverse. Administration Géne Des Hospices Et Secours De Paris. Reverse: Xe Arrondissement. Prix De Bonne Conduite. Silver. 15.23mm. Baer Cat., Jan., 1898, No. 91.

Asiles des Aliénes.

2911. Obverse. Bust of Æsculapius, facing. At sides, laurel branches; in front, serpent staff, transversely. Inscription: Asiles Des Aliénes Exergue: Seine Infre. Reverse. Within crossed laurel tied by ribbon: Commission | De | Surveillance Exergue: Lecomte Rouen 1867 Silver. Octagonal. 22.35mm. Edges dentated. In my collection.

Hôpital de la Charité.

2912. This is mentioned on a medal of Dr. Léon Athanase Gosselin (1815-87), of Paris.

Hôpitaux Civils.

2913. Obverse. Bust of Æsculapius. No inscription. Reverse as that of No. 1602. Silver. 21.34mm. I owe description to Prof. Paul Berger, of Paris.

Hospice Beaujon.

See under Cholera, No. 2586. There is also a medal upon its establishment in 1784 by Louis XVI (41mm). As it was then, however, but a school, I do not number it. This is in my collection.

Hospices Civils.

2914. Obverse. Head of Æsculapius, to right, his staff behind. Reverse. Within laurel branches, tied by ribbon: Hospices | Civils | De Paris Silver. 21.34mm. In the Government collection and my own.

Hospice Des Orphelins.

2915. Obverse as that of No. 1511 (St. Vincent de Paul). Re-

verse. Hospice | Des | Orphelins (incused.) Bronze. 24.40mm. In my collection.

Hôtel Dieu.

Besides Nos. 1603 and 2324, see under Cholera, No. 2586.

Institution des Jeunes Aveugles.

2816. Obverse. Head, to left, with oak wreath tied by ribbon. Beneath: Barre Ft. Inscription: Louis Philippe I - Roi Des Français Exergue: a star. Reverse. Institution | Des Jeunes Aveugles | - | La Première Pierre | Du Nouvel Edifice | A Ete Posée Le 22 Juin 1839 | Louis Philippe Régnant | Mr. Dufaure | Ministre Des Travaux Publics | Mr. Vatout Directeur | Des Monuments Pubcs Et Hists. Mr. Philippon Architecte Bronze. 32.50mm. In my collection.

See also under Spain.

La Pouponnière (for foundlings).

2917. Obverse. A female, to left, with infant in arms. At right, low down: O. Roty Inscription: Maternité Reverse. A wreath of flowers, at base of which a bird in nest. Within: La | Pouponnière | Société | Maternelle | Parisienne | Avril | 1891 Silver. 23.37mm. I have impressions from Dr. Brettauer.

Vincennes. Asylum for Convalescent Workmen.

2918. Obverse. Bust. Chabaud. Inscription: Napoleon III. Reverse. Asile Imperial Pour Les Ouvriers Convalescents Inauguré Le 31 Aout 1857. Bronze. 36.56mm. Schulman Cat., June, 1896, No. 115.

The following belongs in connection with hospitals. It is somewhat similar to No. 2287:

2919. Obverse. Armorial shield, with cardinal's hat, pectoral cross, and collar of the Order of Saint Esprit. Inscription: Iac. Car. Perron, Ar. Sen. Mag. Fr. Eleem. Reverse. A female nursing, with two other children. Inscription: Camera · Gen · Reform · Hosp · Exergue: 1614. Mazerolle, Annuaire de la Soc. Fr. de num. et arch., XII, 1888, p. 450.

Of the exact locality of the following, the Order of St. Jodocus, I am as yet uncertain.

2920. Obverse. A Maltese cross of white enamel, upon which a circular shield, similar, with the Geneva cross in red enamel, in its field. Inscription: Hospitaliers |· St. Josse · Reverse. As obverse, save that central shield bears simply two black circles. Gold. 10.16mm. With broad red ribbon, with white margins. In my collection.

GERMANY.

Berlin. IVth Convention of Deaf-Mutes, 1874.

2921. Obverse. A female seated, to left, with book and compasses, and surrounded by ancient and modern emblems. At left: Loos D. Inscription: Anerkennung Des Fleisses Reverse. Within laurel branches tied by ribbon: Vierte | Ausstellung | Der | V. Taubstummen | Selbst | Angefertigten | Gegenstände | Berlin | 1874. Silver. 19.30mm. In my collection.

Breslau. Knabenhospital.

2922. Obverse. The building. Reverse. Inscription, in seven lines. Saurma Jeltsch, p. 44, No. 337.

1801. The New Hospital.

2923. Obverse. The building. Reverse. Wreath and eight lines inscription. Silver. *Ibid.*, p. 44, No. 364.

Dessau.

The medal of 1697, by C. Wermuth, is of an orphan asylum, not for foundlings, and, therefore, I do not give it. I have rubbings from Dr. Brettauer, of Trieste.

Dresden. City Hospital.

2924. Obverse. Head of Dr. C. L. A. Fiedler. Reverse. Inscription commemorating his 25 years' jubilee of connection with the Stadt-Krankenhaus. Bronze, tin. 32.50mm. Zschiesche and Köder Cat., Oct., 1896, No. 4228.

Frankfort-on-Main. Heiligengeist Hospital.

2925. Obverse. Head of Michael von Lukacsich. Reverse. Inscription commemorating his 50th anniversary as chief of the hospital. 1874. Silver. Hamburger Cat., 7 Jan., 1895, No. 3917.

Hamburg. Rebuilding of Lunatic Hospital. 1813-23.

2926. Similar to No. 1609, but smaller. Bronze. 24.38mm. In my collection.

Freemasons' Hospital.

2927. Obverse. Hygeia, seated, extending with left hand a palm branch over a building; a serpent entwined around her right arm feeds from a cup held by an angel at her side, standing upon a scroll. Beneath, at right: O. Bergmann. Hamburg Exergue: 1795-1895 Reverse. Within laurel branches tied by ribbon: Zur Erinnerung | An Das | 100-Jaehrige | Bestehen | Des Freimaurer- | Krankenhauses | Zu Hamburg | 3. October | 1895 Silver, bronze. 27.43mm. Marvin, Masonic Medals, Am. Journal of Numismatics, Jan., 1897, p. 87, No. MLVIII. In the Government collection and my own.

Munich. Heiligengeist Hospital. 1772.

2928. Obverse. A dove. Below: A P in monogram. Reverse blank. Brass. 18.29mm. Helbing Cat., 23 March, 1896, No. 1468.

Nuremberg. Children's Hospital.

2929. Obverse. Bust, facing and to left. Inscription: Hofrath. Julius. Cnopf. Doctor. Med: | Der Gründer Und Unermüdlicher Förderer Des Kinderspitales Exergue: 1823. 5. Juli 1893 Reverse. The hospital with trees, fountains, etc. To right, beneath base: K. Exergue: laurel branches tied by ribbon, in front of which two armorial shields touching each other above. Beneath: Lauer Nürnberg Bronze. 38.60mm. Lauer, Denkmünzen Album, pl. 79, No. 752. In my collection.

The Gesellen Hospiz medal of Nuremberg is not medical, and therefore I do not give it. It is in my collection.

Stuttgart. Katharinenhospital.

2930. 1820. Roser Cat., Würzberg, 1865, No. 1887.

Würzburg. Bürgerspital.

2931. Obverse. A heart, with two flowers. Beneath, two dots. Reverse blank. *Ibid.*, No. 1801.

Austria.

Budweis.

2932. Obverse. A shield bearing three towers with flags above a wall. Above and at sides, scrolls. In front below, an angel, erect, with sword and coat of arms. Reverse. Stadt | Budweiser | Spital: | Pfrindler | (rosette) Brass. 28.44mm. Edges cabled. Donebauer, Böhmische münzen, p. 462, pl. LXVII, No. 4160; *Ibid.*, Böhmische Privat-münzen, p. 779, No. 760.

Prague. Klar Institute for the Blind.

(1542.) Obverse. An angel leading with right hand a blind child, points with left to an irradiated cloud. J.W.L. Inscription: Institut Zu Prag | 1808 Reverse: Der | Blinden Licht: | Religion | Und | Tugend *Ibid.*, p. 811, No. 942. Of the same institution are Nos. 2148 and 2341-2.

Russia.

Moscow. Pauline Hospital.

2933. Obverse. Bust, decorated, to right. Inscription: D. G. Paul Petrovitz Magnus Dux Totius Russiæ Reverse. In back-

ground, the hospital. In front, at left, two men lifting another upon a stretcher. At right, a square pillar, upon which a plant, pitcher and jar. Resting against it, a female extending her right hand toward the group at left. Inscription: Convalescens Vt Convalescant Miseri. Cvravit Exergue: Nosocomio Pavlino | Moscvæ Fvndat | MDCCLXIII Bronze. 38.60mm. In my collection.

St. Petersburg. Lunatic Hospital.

2934. This is alluded to upon the medal of Dr. Johann Georg Von Ruehl (1769-1846), which is in the Government collection and my own.

Simbirsk.

(1629.) Obverse. Head, to right. C. Leberecht F. Inscription, in Russian: (G. D. Alexander I, Emperor and Autocrat of all Russia). Reverse. In Russian, in eight lines: (As a token of gratitude to the Siberian nobility for assistance in fitting out a hospital). 1801. Bronze. 27.42mm. In the Government collection.

SWITZERLAND.

Berne.

(1618.) Obverse. Two female busts, hooded, to left. Upon outer truncation: S. Berger F. Inscription: Mechtild Von Seedorf 1286 Anna Seiler 1354 Reverse. The building, with clouds above. In foreground, two men bearing sick person in chair, and a wagon with another recumbent. Inscription: Haben Ihr Pfund Wohl Angewendet Exergue: Durch Stiftung | Des Insel Spithals | In Bern Neu Erbauet | MDCCXVIII. Lead, bronzed. 32.50mm. In my collection.

Boesingen, Canton Friburg. See under Military and Naval Hygiene.

Geneva.

2935. Obverse. The building, beneath irradiated star. Below base, to right: V. Schlütter Inscription: Complexa Complexis Curantur Exergue: A. Sauter | Directeur Reverse. Within laurel and oak branches tied by ribbon: Souvenir | De | L'Inauguration | 1 Octobre | 1891 Inscription: Institut Electro Homéopathique | *Genève* Aluminum. 23.37mm. In the Government and Disbrow collections and my own.

DENMARK.

Copenhagen. Maternity Hospital.

2936. Obverse. Within circle made by re-entering serpent, nude bust to right. Inscription: Fridericus V.D. G Rex Dan Norv. Vand. Goth | N. 31 Mar. MDCCXXIII+D. 14 Jan. MDCCLXVI Reverse. A female seated, to left, holds naked infant. At her right, child takes cup to a reclining female. At left, three children. At right, erect, the staff of Æsculapius. Behind, a temple. Above, on band: Vetat Mori Exergue: D. I. Adzer Fec. Gold, silver. 35.55mm. Beskrivelse over Danske Medailler og Mynter, 1791, p. 767, No. 176a, pl. XX, No. 2.

Orthopedic Institute.

(2094.) Obverse. The building. Inscription: Det. Orthopædiske Institut. Exergue: Stiftet D. Vii October | MDCCCXXXIV. | C. Joergensen. F Reverse. Apparatus, etc. Inscription: Flid-Belönner Sig Salu Silver, bronze. 23.36mm. Bergsœe, Danske Medailler og jetons, p. 23, pl. IV, No. 116.

Sweden.

Stockholm. Foundling Hospital.

2937. Obverse. An Egyptian landscape, with pyramids and palm trees in distance, the river Nile in the foreground, and Thermuthis, Pharaoh's daughter, rescuing Moses from the water; behind her, two palm trees. Legend: Servavit Regia Nata. Reverse. Inter | Publ. Gaudia | Ex Sophia Albertina | Suae Regis Primogenita | Infantulis Egenorum | Prospexit Pietas | Lib. Fratr Mur. | Holmiæ | 1753. Gold, silver. 23.36mm. By D. Fehrman. Struck by the Lodges of St. Jean Auxiliare and Adolph Frederic. Hildebrand, II, p. 311, note; Marvin, Medals of Masonic Fraternity, p. 171, No. CCCCXXXI. The asylum was founded to commemorate the birth of the Princess Sophia Albertina, daughter of King Adolph Frederic.

Maternity Hospital.

2938. Obverse. A female, to left, with two children. Upon base, to left: C. E(nhörning). Reverse. Minne | Af Framl. | Grosshandlaren | Carl Magn. Nyströms | Frikostighet | Emot Allmänna | Barnbordshuset | I Stockholm (In commemoration of the generosity of the too early deceased C.M.N. towards the General Lying-in Hospital at Stockholm). Exergue: K. Coll. Med. | 1795. Silver. 20.32mm. Hildebrand, p. 228. I have rubbings from Dr. Brettauer.

2939. The Royal Carolian Medico-Chirurgical Institute is men-

tioned upon the medal of Dr. Anders Olaf Retzius (1796-1860), which is in the Government collection.

2940. The Royal Hospital is referred to on that of Dr. Anders Johan Hagstroemer (1753-1830), in the Government collection and my own.

ITALY.

Carrara. Civic Hospital.

2941. Obverse. Bust, to left. Beneath: A. Farnesi Fece. Reverse. Al Dottore | Oreste Andrei | Pei Servigi Resi | Al Civico Ospedale | I Carraresi | MDCCCXC. 29.46mm. Rivista Ital. di num., 6, 1893, p. 496,, No. 41.

Milan. Foundling Hospital.

2942. Obverse. Within a circle, wreath of laurel leaves tied at sides. Upon this, a crowned cartouche, bearing a cross. At sides, flourishes. Inscription: Ricordo Ai Benefattori. Exergue: an ornamented rosette. Reverse. Within beaded circle, a nurse placing infant in cradle. Beneath, to left: Johnson Inscription: Pia Instituzione Providenza Baliatica. Exergue: rosette. Silver, bronze, tin. 29.46mm. Edge of obverse beaded. Struck in 1895. In the Brettauer and Disbrow collections.

Naples. Spedale della Conocchia.

See No. 2590, under Cholera, 1884.

Rome. Hospital of the Holy Ghost (Santo Spirito).

(1614.) This, from an abbreviation upon its inscription, was wrongly attributed to Saxony. My attention was called by Dept. Surg.-Gen. Huntington, U. S. A., then Curator of the Army Medical Museum, to the fact that the building it represents is the same as that on the Roman medal of Vesalius, No. 1297. It belongs, therefore, as now indicated.

Spedale "All Anima" (Austrian).

2943. Obverse. Within a circle, the imperial crowned double eagle, with shield, chain, orb, sword and sceptre. Legend: Sicvt Aqvila Volitans Svper Pvllos Svos — Devter. XXXII. Reverse. The Virgin, upon throne, with child. At sides, kneeling, a nude man and woman. Beneath: H. Witi F. Inscription, between scrolls: Beata Maria-Animarvm. Exergue: De Vrbe. Bronze. 18.27mm. Struck upon the second centennial. In my collection.

Vercelli.

2944. Obverse. Bust, to left, in high relief. Beneath shoulder: G. Galeazzi F. Inscription: Al Card. Gvala Bicchieri Patr. Vercell. Fondatore. Exergue: MDCCXX. Reverse. La |

Congregazione | Dello Spedale Magg. | Di Vercelli | Regnando Carlo Alberto | Padre Dei Poveri | MDCCCXLI. Bronze. 18.28mm. In the Government collection.

Of the location of the following, apparently of a foundling hospital, I am as yet uncertain.

2945. Obverse. A woman seated, nursing a child, and with two others. Legend: Benigna. Est. Omnia. Sustinet. Exergue: A. Schabel F. Reverse. A standing figure invests another, who is kneeling, with insignia of office. Inscription: Collegium. Caritatis. Institum VIII. Id. No. A. MDCCLX. Exergue: A. MDCCCLXXVI. Silver. 26.42mm. In the Government collection.

SPAIN.

Madrid. Deaf, Dumb, and Blind, national college.

2946. Obverse. Before the radiant sun, a square pillar, upon which a bust of Ponce de Leon (writer upon Deaf-mutism). Upon pillar: 24. De Junio | 1870. At sides, laurel branches. In front, supported by nude children, a medallion, upon which Hauy's bust, to right, with inscription: I. N. Des J. A. (Institution Nationale Des Jeunes Aveugles) — De Paris. In foreground, a mounted globe, open book, palette, violin and bow, and dumb-bells. Inscription: P. Ponce de Leon — Valentin Hauy. Reverse. Within laurel branches, tied by ribbon: Colegio. National. De Sords. Mudos. Y. De. Ciegos | Distribucion | Solemne | De Premios En | Fin de Curso | (tablet) | Madrid. Silver. 26.42mm. Edges milled. With loop. In my collection.

ROUMANIA.

Restoration of Hospital of St. Panteleimon.

2947. Obverse. Head, to left. Beneath. W. Kullrich F. Inscription: Carol I Domnolû Românilorû. Reverse. Ospiciulu | St. | Panteleimon, | radicet Ia Annu 1750. | De | Grigorie Ghica Voda | Reconstruit d'in temelie, | 27 Juliu | 1868. In Dilele Mâriei Séle. Bronze. 25.40mm. In my collection.

THE HEALTH OF HAWAII.

The "New York Tribune" of Oct. 4 reviews the report of the Hawaiian Board of Health for the years 1896-97, recently received, which might be passed by without any special notice, as

are so many similar publications, were it not that it throws a timely and instructive light upon an important phase of the now all but settled "Hawaiian question." It will be remembered that one of the chief objections to the annexation of Hawaii was based on sanitary grounds. The islands were denounced as a plague spot. Sensational alarmists rang the changes upon the horrors of leprosy until one might have supposed the average Hawaiian citizen was a leper and the very air of the islands was saturated with lethal infection. To this day it suits the fancy of some to speak of the islands as "our leper colony," just as they or their antetypes used to call Alaska "our Arctic province."

How empty and untrue these denunciations are is shown in the report to which we have referred. There are, of course, lepers in Hawaii. So there are in Scandinavia, in Canada, and in some of the States of this Republic. But they are a small fraction of the population. They are not increasing in number. They are segregated and cared for more thoroughly than in any other land. And they constitute no appreciable menace to the general health of the people of the islands. Indeed, we may well believe that the attention of the world has been called to the lepers of Hawaii not because they are so numerous, but because they are so systematically and so well cared for. The fact is that the number of lepers in the colony on Molokai is slightly decreasing. In the five years 1888-92 the average number was 1,134, and in the five years 1893-97 it was 1,116. Of course, the fact that there are any lepers on the islands is deplorable; as it is that there are any in the world. But since they are there it is to the credit of the islands that they are segregated, and the fact that there is a leper colony on Molokai no more brands Hawaii as a leper country than the establishment of farm colonies for epileptic patients will brand New York as an epileptic State.

As for the general health of the islands, it is good. In the city of Honolulu the annual death rate in 1897 was 21.97 in 1,000. That compares favorably with the rate in American cities. It is lower than the rate in New York down to a very few years ago. When, in 1894, the rate in this city was kept down to 21.05, there was great rejoicing over it as the lowest on record. Two years later it rose to 21.54. And here we have the latest and most improved sanitary appliances, while in Honolulu primitive conditions prevail. Moreover, if we analyze the figures we find that the death rate is high only among the Kanakas. Among the Por-

tuguese colonists it was only 15.79, and among those of American, British and other like origin it was only 14.68. Nor are the details as to causes of death less favorable. Consumption is, as in most places, the deadliest disease, yet almost as many die of old age as of it, and considerably more die of old age than of any other disease after consumption and heart diseases. The figures are: Consumption, 59; heart diseases, 48; old age, 46; convulsions, 35; pneumonia, 31, and so on down through just about such a list as any large city must report.

The chief evils complained of are the lack of sewers and other sanitary arrangements, and the foul condition of many of the immigrants from Asiatic countries. When these have been corrected by American enterprise and American administrative methods, Honolulu will be not only a decidedly salubrious place for American colonists—it is that at present—but one of the most healthful cities in all the world.

THE "DRY SYSTEM" OF SOIL DISPOSAL IN SCHOOLS.

Dr. Ernest W. Bowditch, of Boston, reports on the system in use in Hingham schools (Hingham *Journal,* November 4):

It should be understood, primarily, that the principle of retaining masses of filth within the walls of buildings is radically wrong, for not only is it impossible to *always* be sure that a satisfactory current of air will pass over the deposits and remove bad odors, but the fact that the comfort and perhaps good health of all the occupants of a building so arranged is largely or entirely dependent, so to speak, on the janitor's work, is, in itself, enough to condemn such a system.

This knowledge and the fact that similar apparatus in school buildings in other towns and cities (Pawtucket, Marlboro, Hudson, Lowell, Cambridge, Maynard, Worcester, etc.) have been found unsatisfactory in like ways, and have been removed, throw suspicion on the entire system. Edmund M. Wheelwright, for years the city architect in Boston, who has given the subject of building and maintenance of school houses much attention, says, in an article called "The American Schoolhouse" XI., published in the "Brickbuilder" of September of the current year, page 179:

"The so-called 'dry systems' of soil disposal should not be used where there is a sewer system, and even where there is no sewer

the use of such systems is not advisable. The soil, reduced as it is to powder by heat, is in a condition most menacing to health, and if the draught of the vent stack is at any time defective, as it may often be through the neglect of the janitor to maintain the heat in the stack, there is a reverse current. This powdered matter may pervade the building and spread contagion."

It is difficult to *prove* that the sanitary arrangements at either school had anything whatever to do with directly causing or spreading the outbreak of zymotic disease that called for the recent examination and this report; indeed, with the present imperfect knowledge of the disease the writer would consider it very problematical whether cause and effect could be so traced, though undoubtedly the personal contact of the children one with another spread the disease after it had been once introduced. With this information, however, and the belief that the existing sanitary arrangements are not the best, and never have been, either in theory or practice, and by no means the best possible in the town of Hingham, the writer submits that to satisfy parents either a very careful revision must be made of the present sanitary arrangements so that results of maintenance can be the best possible with existing fixtures, or, preferably, that one of the many standard water-carriage systems be substituted for the present arrangements, which water-carriage system can be provided with local disposal fields of adequate size in the immediate neighborhood of each building.

If it be decided that the existing accommodations are to be retained till next summer vacation, even with such extension of flues and other modifications as would obviously benefit the system, the responsibility resting on the Committee will be great, and should additional cases of any zymotic disease appear among the children of either school where the dry system is in use, the position of the School Committee would not be enviable.

In view of the foregoing, it is advised that the existing sanitary arrangements be removed without delay, substituting water-carriage systems with disposal fields located in the ground adjoining the buildings (which already belongs to the town); and to employ for the execution of such work some well-known plumber whose name is synonymous with good work. If intelligently superintended, there is no reason why such changes cannot be completed before freezing weather of the current year, and it being all perfectly plain, straight work, its probable cost can be figured in advance very closely.

MEDICAL EXCERPT.

By T. P. Corbally, A. M., M. D.

Treatment of Laryngeal or Winter Coughs.—Dr. Walter M. Fleming ("Journal of Nervous and Mental Disease) says, that in acute attacks of laryngeal or winter cough, tickling and irritability of larynx, Antikamnia and Codeine Tablets are exceedingly trustworthy. If the irritation or spasm prevails at night the patient should take a five-grain tablet, containing 4¾ gr. Antikamnia and ¼ gr. Sulphate Codeine, an nour before retiring, and repeat it hourly until the irritation is allayed. Allow the tablet to dissolve slowly in the mouth, swallowing the saliva. After taking the second or third tablet the cough is usually under control, at least for that paroxysm and for the night. Should the irritation prevail in the morning or at midday, the same course of administration should be observed until subdued. In neuralgia, in short, for the multitude of nervous ailments, he doubts if there is another remedial agent so reliable, serviceable and satisfactory, and this without establishing an exaction, requirement or habit in the system, as morphine does.

"Headache Powders."—An inquest was held recently ("British Medicale Journal") on the body of a young man who died from the effects of taking two "headache powders." From the analysis of the contents of the stomach it appears that the powders in question were composed of antifebrin, but the exact quantity administered was not ascertained. Antifebrin, like most aniline derivatives, is a drug which should be employed with especial caution. It is official under the name of acetanilide, and its potency is sufficiently indicated by the fact that the maximum dose assigned to it is only three grains. There have been many cases of poisoning from the injudicious administration of this remedy, the symptoms produced by it being of the aniline type. The patient usually complains of giddiness, noises in the ears, throbbing in the temples, and a dull, heavy pain in the head. The face becomes livid, the lips are blue, and the pupils are contracted. This is followed by symptoms of collapse, the face and extremities are cyanosed, the skin is covered with cold clammy perspiration, the pulse is

feeble, and respiration becomes shallow and frequent. There is no specific antidote, and after the administration of a brisk emetic the sufferer should be kept in a strictly recumbent position, and plied vigorously with stimulants. The effects are usually of considerable duration, and in one case the patient was not out of danger for fourteen hours. We are informed that there is a considerable demand for powders of this description, the purchasers being chiefly young women of the sempstress class. Whether the sale of these drugs should be in some way restricted may be an open question, but it is quite clear that some intimation should be given that they are not free from danger, and that they can not be taken in unlimited quantities with impunity. Many people acquire an unfortunate habit of dosing themselves with remedies of unknown composition, and this death under such sad circumstances may be taken as an indication that the custom is not one which can be indulged in with safety.

THE TREATMENT OF OBESITY.—Opinions concerning the dietetic treatment of obesity have undergone very great changes in the last few years, many from that of almost starvation to fairly liberal feeding. Kisch, of Marienbad (*Wien. Med. Press*), deprecates too rigidly uniform measures in the treatment of obesity, which should be carefully adapted to each individual case. He discusses the principal indications under seven heads:

(1) All dietic excess should be avoided; three, or at the outside four, meals a day should be permitted and no food allowed in the intervals. The quantity and variety taken should be based upon the heat-giving properties of the food substances; Kisch gives the value of some of the principal diets in calorics and recommends that no more than the amount necessary to provide the minimum number of calorics should be allowed. (2) As regards quality, the first essential is an adequate supply of proteids; a moderate amount of carbohydrate may be allowed, but the fat must be reduced to a minimum. Piquant seasonings are to be avoided, as they may stimulate to dietetic excess. (3) The consumption of fluid is not to be limited unless symptoms of cardiac failure are present; such liquids as are fancied, with the exception of alcohol, may be taken at any time, but moderation should be observed at meals. Cold water, especially if charged with carbonic acid, is to be preferred; anemic subjects should drink less than plethoric. The amount allowed must be restricted when signs of fatty affec-

tion of the heart are present. (4) The author is a strong advocate of exercise and active movements in the treatment of plethoric obesity, the state of the heart always being taken into consideration; they are of particular value in increasing the activity of oxidation processes. In anemic subjects, however, these advantages are counterbalanced by the increased nitrogenous waste which may injuriously affect the heart. In these patients passive movements and massage are accordingly to be recommended. (5) Great importance is to be attributed in the hours of sleep, during which the activity of metabolism is reduced; sleep should be entirely forbidden during the day. (6) Tissue change is also to be increased by baths, particularly in springs rich in carbon dioxide, which are most stimulating to the skin. Turkish baths are also of value if the heart is sound. (7) Finally, it is of importance to secure a pure air, rich in ozone, especially in a high and wooded neighborhood. The lungs are thus stimulated to greater activity, and the effect is aided by the change in the patient's habits and occupations.

ACTINOMYCOSIS OF THE UMBILICUS.—M. Reboul, of Nimes, sent an interesting note ("Gazette Hebdomadaire," 23d of October last) on actinomycosis of the umbilicus by direct inoculation to the Académie de Médecine.

The subject of the operation was a man twenty-one years of age, who was employed in harvesting. In the month of August last he saw, just above the navel, an oval tumor, situated under the skin.

When the patient entered the hospital it was found that the umbilicus was filled with hard papillomatous pimples, that bled a little when pressed; between these pimples were seen two granules resembling grains of wheat.

The case was diagnosed as an actinomycosis of the umbilicus, and the tumor and the umbilical canal to which it adhered were removed.

The results of the operation were very simple: the wound united by first intention and was followed by no unpleasant results whatever.

The portion removed contained a number of small yellow grains scattered through the mass.

This was examined under the microscope and the grains gave distinct evidence of the presence of actinomycosi.

In the centre of many of the pimples of the tumor small, purulent cavities, each containing a little kernel of wheat surrounded by numerous particles of actinomycosi were found.

Then cultures made on potatoes gave positive proofs of their existence and produced fine colonies.

This case of actinomycosis of the umbilicus is a rare instance of the direct inoculation of man with small particles of wheat containing actinomycosi. A proper attention to propylasis is therefore indicated. Harvesters ought to be warned of the danger of contracting this disease when at work, if their bodies are exposed; they should therefore take sufficient care to protect themselves and cleanse their persons from all articles of dust that may adhere to them when at their work.

INCREASE OF WEIGHT WHILE FASTING.—M. C. Bouchard presented to the Académie des Sciences the results of his experiments on the increase of weight in persons fasting, and receiving only the gas from the atmosphere through the lungs, and subjected to constipation and the retention of urine. When weighed the individual gains 40 grammes in an hour. The cause of this increase in weight is the transformation of the fat into glycogen, under the influence of the oxygen.

M. Berthelot admits increase of weight by oxidation of fat, but does not think the fat is changed into glycogen.

RESECTION OF THE INTESTINES.—M. Bœckel, of Strasbourg, gave the ("Gazette Hebdomadaire," 23d October, 1898) history of three cases of tumors of the intestines which were removed by resection.

The three cases were women, aged, respectively, forty, forty-three and forty-seven years.

The first had a tumor of the cœcum of a tuberculous nature; the others were cancers of the colon descending and of the colon ascending.

In the first case, Bœckel resected a portion of the descending colon near the splenic curve; the ends thus divided were joined by suture; the abdomen was closed and the patient was perfectly restored on the twentieth day.

In the others the surgeon resected the cœcum with the appendix and also a portion of the ascending colon and the ilium, removing

the healthy tissue to a considerable distance beyond the diseased portion; he also formed a communication between the small and the large intestine by means of a lateral union of the first with the second (ileo-colastomy by implantation).

The first case healed after ten days, and the patient was able to resume her usual occupation after six weeks. She has since remained quite well.

The second of these cases died the sixth day after the operation; the operation was performed too late for, at the autopsy, extensive metastases were found under the form of enormous cancerous nodules in the liver, in the chest and in the retro-peritoneal ganglious.

TYPHOID FEVER IN AN INFANT.—M. Cassoute gives to the section on pediatria of the Congrès de Gynécologie, D'Obstétrique et de Pediatrie ("Le Progrès Médical," 22d October last) the case of a child two months old attacked with diarrhœa, hypothermia and collapse. In testing the reaction with the sero-diagnostic, the agglutination, although slow, was found to be complete at the expiration of half an hour. The autopsy confirmed the accuracy of the sero-diagnosis. It would seem, from this case, that many similar cases of typhoid fever run their course unperceived, thus showing the necessity for the systematic employment in similar cases of the reacting agent of vidol.

M. Béry reported, in this connection, many cases in which children showed all the characteristic manifestations of *hysteria* which seemed to be cases of organic disease. He reports specially a case of false peritonitis which occurred twice, in which he was led into error of diagnosis in the first attack. Hysteria is not a rare disease in infancy and in childhood, and in difficult or doubtful cases it always deserves careful consideration.

UNGUENTUM RESINOL (Resinol Chemical Co., Baltimore) is particularly recommended by Dr. F. J. Champney, of Wyoming, Neb., in cases of chronic eczema, pruritus ani and pruritus vulvæ. An obstinate case of "itching piles," under our own observation, that had resisted everything else, was promptly relieved by it.

PEARLINE?—The Best of Soaps—Above all for cleansing flannels; they require no rubbing in its use, only soaking and rensing.

EDITOR'S TABLE.

SANITARIAN, DECEMBER, 1898.

☞All correspondence and exchanges, and all publications for review, should be addressed to the Editor, Dr. A. N. Bell, Brooklyn, N. Y.

QUARANTINE REQUIREMENTS.

At the time of this writing there are two quarantine conventions in anticipation, one at Memphis and the other at New Orleans, for "the purpose of arriving at the best mode of preventing yellow fever from entering our country from abroad, and, when here, the best method to employ in stamping it out and preventing its spread."

But the Southern mind seems to be already made up. "Old fogies may want shotgun quarantine to last forever," says the "Huntsville Mercury," "but the business interests of the country demand something better; they want a national quarantine."

The Memphis "Scimitar" recently sent out the following note to editors of Southern dailies and prominent weeklies:

"Please send us by return mail one to three hundred words, giving your views of national quarantine, and of the convention to take means toward that end which it is proposed to hold in Memphis."

Twenty-nine replies have been received. Twenty-seven favor national control of quarantine and two oppose the proposition!

So far it appears that the Southern press is almost unanimous in advocacy of an effective general system of quarantine under control of the national government.

"The 'Galveston-Dallas News,'" says the New Orleans "Times-Democrat," "comes out squarely, emphatically and intelligently in favor of national quarantine, and gives the very best reasons why we should have it. Its declaration is all the more important because Texas was feared as one of the stumbling-blocks in the way of any Federal provision on this subject. Texas has always maintained a position of independence in regard to quarantine, as it has done in not a few other matters, and has actually refused to enter into any plan of co-operation with the other States. 'We

will maintain our own quarantine,' the people of Texas said in effect, 'and suit ourselves, taking care of ourselves and caring little what our neighbors may do.'

"Texas refused to send delegates to the Mobile quarantine convention. It refused to send any of its health officers to the Atlanta conference, where an attempt was made to mitigate some of the hardships and injustices of quarantine, and to enable business to be kept up; and it declined to accept the Atlanta agreement, and built up a Chinese wall at the Texas boundaries. Public sentiment in Texas was supposed to be bitterly opposed to Federal interference in State affairs, particularly in health matters; and the reports of the United States Marine Hospital physicians of fever at Galveston, both last year and this, were indignantly resented by the Galvestonians.

"From these facts it was contended that, however the rest of the South might be divided in the matter of national quarantine, Texas would oppose it. And the most stalwart opposition in that State was expected to come from the Galveston district. If, therefore, the 'News' truly expresses the sentiment of Galveston and Texas on this subject, 'the Empire State' of the South, instead of being an enemy in the way of this sanitary progress, can be counted on as one of its most stalwart supporters. The 'News' says:

" 'It is idle to talk now about whether or not quarantine ever was a national question. We are dealing with the present. It is a national question to-day. Congress can no more ignore the whole question of sanitation in its widest sense while it devises plans for stable government in the West Indies than it can ignore the appropriation of money for paying the legitimate current expenses for the general government.'

"All the points made by the 'News,' " says the "Times-Democrat," "are excellent, and they meet the only objections ever urged against national quarantine. Whether we have had national quarantine before or not, and whether any provision were made for it, matters not, the 'News' insists, and it is unnecessary to discuss the matter from a legal point of view, as many of the opposition have done. We need the quarantine now, and must consider the question from the standpoint of the present rather than the past. Our Constitution and our laws are sufficiently elastic to allow us to make any provision that may be necessary to meet new conditions. To tell us that what is absolutely necessary for the protection of the people, for their health and comfort and prosperity

is unconstitutional is to tell us that these laws are a curse rather than a convenience to us."

"One thing is sure," says the Elmira "Telegram," "if Mississippi and Louisiana are not to retrograde in everything that goes to make up the typical American community they will have to face and solve the yellow fever problem along other lines than shotgun quarantines and embargoes upon intercourse with the rest of the Union. No State which is cut off from the rest of the world for three or four months can keep up with the national procession."

The Birmingham "Herald" says: "There is no way out of the disgraceful and damaging scenes of the last two years but through internal sanitation backed up by national authority at the ports, and elsewhere whenever the plague becomes manifest. How far federal authority can be extended in the way of discovering the existence of the disease may be an open question; but as soon as the disease is recognized the federal authority should take hold, and be given all needful support in its efforts to crush out the disease. But sanitation of the right sort and national authority at the ports, together with the cleansing of Havana, would obviate federal interference in the interior. There need never be another case of yellow fever in the interior districts of the country. But there surely will be unless local sanitation is sternly enforced and continuously maintained. Sanitation and federal quarantine are a strong team, but the more efficient of the two is local sanitation."

But to effectually meet the demands for the national quarantine service there is need for its conversion into

A National Bureau of Public Health.

For this the Caffery bill substantially provides. For analysis of this bill, see under National Quarantine.

The Marine Hospital service, as at present organized, has already been tried as an agency for suppressing yellow fever in the South, and has not been found wanting. The safety of millions of people in the Gulf States is contingent upon prompt recourse to the radical measures of sanitation which only government officials can enforce.

The Marine Hospital service is already equipped with all the essentials. There are no more experienced physicians in dealing with yellow fever and other infectious diseases, or better accomplished bacteriologists and analytical chemists to be found in the United States than are to be found in the medical corps of the

Marine Hospital service. Moreover, the bureau is already provided with a well-appointed bacteriological and chemical laboratory, from which have emanated many important reports on water supplies, disinfectants, etiological studies of infectious diseases, serum-therapy, etc.

Divest it of the irreconciliable complications by which it has been embarrassed hitherto, and let the State and local boards of health be divested of their obligations to contend against exotic diseases—as contemplated by the Caffery bill—and both national and State sanitary services would be correspondingly benefited.

Memphis, Tenn., Nov. 18.—The Quarantine Convention completed its work to-day. The conclusion it arrived at was expressed in the following resolution:

Resolved, That there be established a National Bureau of Public Health in the Department of the Treasury of the United States; that the administration of all the public health functions now exercised by authority of the United States be placed in charge of this bureau, and that the sanitary authorities and commercial interests of the several States of the Union be brought into immediate relations with the bureau and be given a due share in the power and responsibilities of the Control Board, through the agency of an advisory council, consisting of one member from each State, to be appointed by the authorities of the several States.

The Executive Committee, which had previously organized, was instructed to proceed to Washington at the next session of Congress and use its best efforts to have a law promulgated on the lines of the resolution of the convention.

ALABAMA OPPOSES NATIONAL QUARANTINE—FUMIGATES CARBOLIC ACID.—Dr. Spottwood, of Mobile, in a letter published in the Little Rock "Democrat," Nov. 3, under the head of "Quarantine Abuses," cites as follows:

A barrel of carbolic acid that was shipped to Selma had to be thoroughly fumigated before it was allowed to be landed in that town. A large load of rocks from a hundred miles up the Tombigbee river that passed down the river (by the city) had to be "disinfected" before it was unloaded at Fort Morgan, where the material was to be used in building harbor defences. No doubt the health authorities had detected numerous "yellow microbes" upon the wharves, anxiously awaiting the approach of the barge, to pounce upon the unsuspecting rocks. So absurd were the

quarantine regulations imposed by the Selma health authorities and the intervening counties that the officers of the Mobile and Birmingham railroad had to discontinue all trains over their road until quarantine was raised. Is it any wonder then that the quarantine has a much greater terror for all sensible people than the dreaded yellow fever itself? Is it any wonder that all classes of business men cry aloud to the government to save them from the local quarantine fiend and establish a national quarantine, based upon reason, justice and humanity; quarantine regulations that may be enforced without paralyzing business and stifling commerce?

DAMAGES FOR TYPHOID FEVER.—In the superior civil court at East Cambridge, Mass., Oct. 10, the jury returned a verdict in favor of the plaintiff in the case of Asa Forbes vs. Litchfield. The plaintiff was a tenant of the defendant in a house at 5 Myrtle Avenue, Brighton.

The premises were condemned by the Board of Health as unhealthy, and the plaintiff claimed that he was not notified of the conditions and continued to live there. As a result his children were taken sick with typhoid fever.

He brought suit accordingly, and the jury's verdict was: $100 for daughter, Carrie; $150 for son, Eugene, and $250 for the plaintiff.

THE KILLING OF HAROLD FREDERIC.—A JUST VERDICT.—The coroner's inquest in the case of Mr. Harold Frederic, the correspondent of the New York "Times," who died in London in consequence of maltreatment at the hands of a Christian "scientist," was held on November 8. The jury rendered a verdict of manslaughter against Mrs. Mills, the Christian scientist who attended and treated him, and brought a similar verdict against a young woman, a member of Mr. Frederic's household, who summoned and assisted Mrs. Mills. The verdict of the jury was that death was caused by heart failure, which was accelerated by the absence of medical treatment; that the deceased man was physically incapable and occasionally insane; and that the two women were criminally responsible for his death.

A NEW HOT-WATER BOTTLE.—According to the "Druggists' Circular and Chemical Gazette" for November, the expensiveness

and want of durability in the ordinary rubber bottles and ice-bags which have been so essential in the sick chamber have long been a perplexing problem. Experiment with rice paper, covered inside and out with a coating of Japanese lacquer, led Professor Jacobsohn to recommend this material to the Berlin Society of Internal Medicine as far superior to rubber. In strength, flexibility, imperviousness, lightness and durability it is said that this bottle leaves little to be desired.

ADULTERATING RICE.—Even so cheap an article of food as rice is adulterated. The purpose is to give the grains an attractive color, the articles used being oil and paraffin, but the effect on the rice is deleterious. Those oily substances, a New Orleans paper says, soak into the grain and make it hard. The result is that more cooking is needed, and even then the rice often remains hard, and, to that extent, is made indigestible. In addition, the oil adds to the weight of the grain, and thus again the buyer is cheated. The Louisiana Legislature, at its recent session, undertook to correct the evil by making the use of oil or paraffin in the cleaning of rice a misdemeanor punishable by fine or imprisonment. The law is more drastic than a German one on the same subject, the German statute merely requiring that the adulterated rice be labeled "oil finish" or "paraffin finish."

THE NINTH ITALIAN MEDICAL CONGRESS.—On the 3d of October last ("Revista Internazionale d'Igiene," October, 1898) the Ninth National Medical Congress was inaugurated in the hall of the University in Turin, Italy. Professor Bozzolo introduced the Honorable Guido Baccelli and thanked him for honoring the assembly with his presence, after which the honorable gentleman addressed the members of the Congress. He spoke of the great progress made in the subject of biology and in general medicine during the present century; he called to mind how, at the close of the eighteenth and the beginning of the nineteenth century, Italy gave to the world the great work of Giambattista Morgagni, to the success of Malpigi, and then referred to the microscope as having revolutionized many of the details of science and led to its future triumphs. Chemistry lent its aid, and physiology advanced with new vigor.

In the meantime, Italy abandoned her noble traditions, digressed into useless theories and lost her proud position. In France the

glorious school of Pasteur arose to a noble prominence, and the fortunate discovery of the bacillus of cholera by Robert Koch was followed by the success of Rudolph Virchow, who gained such renown in Germany.

The *Disquisitio Causarum*, said Baccelli, gave to medicine in our century the title and the rank of a philosophical science. Science and our art is in the direct road to uninterrupted advance, and we must adapt ourselves to the situation, but we must not be discouraged by occasional failures in the realization of our hopes, nor pretend to accomplish the impossible.

The eloquent tribute to medical science was interrupted by frequent bursts of applause and by acclamation at the close.

POSTPONEMENT OF THE THIRD PAN-AMERICAN MEDICAL CONGRESS.—Dr. Charles A. L. Reed, Secretary of the International Executive Commission, Cincinnati, O., announces that, in accordance with the request of the government of Venezuela, and of the Committee on Organization, the Third Pan-American Medical Congress has been postponed to meet in Caracas in December, 1900.

THE TRIUMPHS OF MODERN SURGERY.—The "Public Health Journal" for October must be held responsible for the following:

They sawed off his arms and his legs,
  They took out his jugular vein;
They put fancy frills on his lungs,
  And they deftly extracted his brain.
'Twas a triumph of surgical skill
  Such as never was heard of till then;
'Twas the subject of lectures before
  Conventions of medical men.
The news of this wonderful thing
  Was heralded far and wide;
But as for the patient, there's nothing to say,
  Excepting, of course, that he died.

LIVES LOST IN THE WAR.—Commissioner of Pensions H. Clay Evans computes the number of lives lost in the recent war, covering the period from May 1 to September 30, at 2,906. Of this number 107 were officers. At Santiago the loss of life was 22

officers and 222 men. This is an average of one officer for every ten men. At Cardenas one officer was killed. Since the battles on Cuban soil 61 men have died of wounds received in service.

The total number of American soldiers that have died in camps from disease is 80 officers and 2,520 privates, or an aggregate of 2,600. This is a remarkable record in view of the terrible climatic disadvantages, and fully verifies the soldiers' adage that disease kills more men than bullets. There have been six hundred claims for pensions filed to date as a result of the war.

The loss of so many officers in the Cuban campaign is accounted for by the fact that Spanish sharpshooters, hidden in the trees and dense foliage, used smokeless powder and picked off the officers with ease.

Commissioner Evans says that the loss of life resulting from the destruction of the Maine in Havana harbor will be placed on the same basis as mortality in battle. He holds that the general law providing for indemnity to sailors and soldiers in the federal service will apply to the explosion at Havana.

LIFE INSURANCE EXTRAORDINARY.—One of the largest transactions ever consummated in life insurance in the United States, and undoubtedly the largest credited to the State of New Jersey, was recently effected by the Prudential Insurance Company of America. It was in the shape of an issuance of $400,000 of partnership insurance in favor of four members of the firm of Hahne & Co., proprietors of the Newark Department Store. The first annual premium of over $13,000 has just been paid and the policies have been delivered.

Before deciding in what company the firm would seek the insurance the leading life insurance companies of the United States submitted figures. No policies so completely satisfied the Messrs. Hahne and Kellner as those of the Prudential. The officials of the Prudential are pointing to the transaction with pride, as it tends more than anything to demonstrate the faith with which business men and men of affairs regard the company.

OBITUARY.

Colonel George E. Waring, Jr., died at his residence in New York October 29, 1898, a victim of yellow fever, which he contracted in Havana.

By the death of Colonel Waring the public has been deprived of the services of one of the most distinguished sanitary engineers in the country. When, in 1894, he was appointed Street Commissioner of the city of New York he instituted a marked reform, entering upon his work resolutely, allowing no interference from anybody, not even from the powers from which he owed his appointment. He did the work so well and thoroughly that all were forced to admit that it was completely successful.

George E. Waring was born at Poundridge, Westchester County, in 1833. He was a son of George E. Waring, a wealthy stove founder of Stamford, Conn. In the civil war he commanded the Fourth Cavalry of Missouri.

His most important works in sanitary engineering were the construction of a sewer system in Ogdensburg, in 1871; the main sewer of Saratoga Springs, in 1874; the sewerage of Memphis, in 1880; the Buffalo trunk sewer, from 1883 to 1886, and the sewerage of San Diego, Cuba, in 1887.

Colonel Waring was sent by the Government to Havana, not long ago, to ascertain and estimate the means and the cost of placing that city upon a proper sanitary basis. In that fever-stricken island he contracted the disease which resulted in his death.

Colonel Waring wrote several books on farming, travel and sanitary engineering. He belonged to several clubs; he was also an honorary member of the Royal Institute of Engineers of Holland; member of the English Institute of Civil Engineers; fellow of the Sanitary Institute of Great Britain, and corresponding member of the American Institute of Architects.

MORTALITY STATISTICS ABROAD FOR THE SECOND QUARTER, 1898.

Population, total mortality, annual death rate per 1,000, and deaths from typhoid fever, diphtheria, diarrhœal diseases and consumption.

London, 4,504,766; 18,444; 16.6; 73; 366; 398; 1,915. Glasgow, 724,349; 4,086; 22.5; 41; 28; 107; —. Liverpool, 633,645;

3,638; 22.9; 42; 28; 36; —. Manchester, 539,079; 2,682; 19.8; 27; 10; 45; —. Birmingham, 510,343; 2,247; 17.5; 27; 33; 41; —. Leeds, 416,618; 1,964; 18.8; 9; 26; 7; —. Sheffield, 356,478; 1,599; 17.9; 15; 10; 20; —. Dublin, 349,594; 2,048; 23.3; 33; 26; 26; 284. Bristol, 316,900; 1,187; 15.0; 2; 13; 14; —. Belfast, 304,610; 1,847; 24.2; 146; 20; 51; 317. Edinburgh, 295,628; 1,449; 19.6; 13; 10; 47; 160. Nottingham, 236,137; 900; 15.2; 8; 8; 8; —. Bradford, 233,737; 995; 17.0; 4; 2; 3; —. Hull, 229,887; 894; 15.6; 3; 8; 9; —. Newcastle, 223,021; 1,255; 22.5; 7; 8; 13; —. Salford, 215,702; 1,054; 19.5; 8; 6; 16; —. Leicester, 208,662; 829; 15.9; 2; 13; 8; —. Portsmouth, 186,618; 615; 13.2; 7; 8; 7; —. Cardiff, 177,770; 557; 12.5; 2; 37; 6; —. Brighton, 122,310; 388; 12.7; —; 2; 5; —. Norwich, 111,669; 438; 15.7; 6; 6; 6; —. Plymouth, 99,136; 445; 17.9; —; 2; 8; —. Amsterdam, 503,045; 2,073; 16.4; 9; 17; 172; 247. Rotterdam, 298,433; 1,483; 19.9; 5; 7; —; —. La Hague, 196,325; 723; 14.7; 1; 10; —; —. Paris, 2,511,629; 12,383; 19.8; 44; 63; 549; 2,486. Lyons, 466,028; 2,237; 19.2; 5; 12; 78; 348. Lille, 219,529; 1,241; 22.6; 1; 8; 152; 189. Saint-Etienne, 135,784; 715; 21.0; 7; 10; 28; 92. Nantes, 125,757; 603; 19.2; 14; 5; 26; 136. Roubaix, 124,447; 524; 16.8; 4; 2; 66; 92. Le Havre, 119,470; 709; 23.7; 14; 3; 56; 158. Nice, 114,121; 565; 19.8; 13; 6; 63; 62. Reims, 107,709; 679; 25.2; 4; 4; 32; 90. Nancy, 99,012; 516; 20.8; 6; 2; 30; 87. Berlin, 1,728,201; 6,990; 16.1; 15; 109; 551; 1,031. Hamburg, 661,015; 3,066; 18.4; 5; 26; 104; 336. Munich, 430,000; 2,740; 25.5; 3; 31; 522; 365. Leipzig, 422,097; 1,875; 17.8; 8; 27; 252; 229. Breslau, 392,795; 2,629; 26.8; 9; 27; 341; 389. Dresden, 377,500; 1,807; 19.1; 5; 10; 148; 240. Cologne, 340,000; 1,801; 21.2; 6; 43; 126; 219. Frankfort, 244,808; 1,038; 16.9; 1; 4; 50; 203. Hanover, 227,660; 843; 14.7; —; 11; 25; 98. Magdeburg, 220,722; 1,032; 18.7; 1; 15; 88; 102. Dusseldorf, 192,518; 810; 16.8; 1; 15; 54; 96. Konigsberg, 178,821; 1,051; 23.5; 10; 12; 134; 82. Nuremberg, 172,941; 1,081; 25.0; 1; 10; 98; 224. Chemnitz, 172,417; 1,013; 23.5; 1; 18; 22; 88. Altona, 161,886; 723; 17.9; 1; 5; 16; 79. Charlottenburg, 161,062; 542; 13.4; —; 15; 48; 65. Stettin, 154,233; 874; 22.6; 3; 13; 189; 82. Stuttgart, 149,943; 693; 18.5; 1; 12; 49; 87. Bremen, 147,339; 677; 18.3; 2; 5; 20; 115. Elberfeld, 146,281; 579; 15.8; 3; 9; 35; 86. Strasburg, 142,885; 801; 22.4; 3; 26; 120; 89. Barmen, 132,598; 543; 16.4; —; 4; 59; 77. Aix-la-Chapelle, 131,364; 558; 17.0; 2; 4; 89; 46. Dantzig, 128,325; 679; 21.2; 2; 24; 80; 90. Halle, 123,755; 653;

21.1; 3; 10; 47; 63. Brunswick, 122,718; 460; 15.0; 3; 7; 25; 62. Crefeld, 108,211; 479; 17.7; —; 10; 12; 59. Essen, 105,528; 555; 21.0; 2; 10; 42; 78. Berne, 54,578; 233; 17.4; —; 4; 11; 38. Bale, 94,646; 397; 16.7; 5; 7; 29; 63. Geneva, 87,926; 463; 21.1; 1; 2; 17; 82. Lausanne, 41,655; 201; 19.3; —; 1; 4; 33. Zurich, 158,504; 579; 14.6; 12; 7; 37; 99. Vienna, 1,574,129; 9,048; 22.6; 22; 102; 810; 1,585. Buda-Pesth, 648,104; 3,554; 22.0; 27; 35; 237; 644. Prague, 377,109; 1,899; 20.1; 12; 9; 84; 342. Triest, 164,491; 972; 23.6; 7; 11; 87; 177. Lemberg, 139,094; 974; 27.9; 9; 13; —; 228. Gratz, 122,350; 828; 27.1; 4; 14; —; 179. Brunn, 102,509; 667; 26.0; 2; 3; —; 172. Cracovie, 82,-607; 696; 33.7; 6; 13; 60; 161. Copenhagen, 340,500; 1,804; 21.1; 4; 18; 65; 260. Stockholm, 274,611; 1,319; 26.9; 19.3; 3; 37; 63; 210. Gothembourg, 117,350; 474; 16.1; —; 3; 30; 110. Christiania, 203,324; 999; 19.7; 3; 6; 47; 183. St. Petersburg, 1,132,677; 7,720; 27.0; 305; 260; 858; 1,027. Moscow, 988,614; 7,860; 31.4; 104; 133; 1,873; 956. Varsovie, 601,408; 2,950; 19.5; 33; 52; 316; 312. Odessa, 383,000; 1,806; 18.8; 22; 18; 169; 215. Venice, 167,074; 731; 17.5; 16; 9; 58; 92. Bilbao, 66,956; 571; 34.1; 21; 6; 25; 88. Lisbon, 338,587; 2,191; 25.8; 15; 17; 161; 264. Bucharest, 248,509; 1,858; 29.9; 12; 28; 123; 234. Brussels, 551,011; 2,303; 16.7; 23; 10; 294. Anvers, 271,-284; 1,044; 15.4; 3; 7; 129. Liege, 167,305; 603; 14.4; 7; 1; 77. Gand, 161,125; 756; 18.8; 2; —; 87.

For the First quarter, 1898:

Nice, 114,121; 747; 26.1; 25; 2; 26; 87. Debreczin, 60,700; 448; 29.5; 4; 5; 1; 53. Presburg, 52,800; 425; 32.2; 3; 13; 1; 58. Helsingfors, 79,454; 441; 22.2; 1; 4; 23; 57. Rome, 489,965; 2,862; 23.3; 15; 13; 104; 206. Milan, 464,819; 2,720; 23.4; 27; 48; 82; 242. Turin, 353,424; 1,795; 20.3; 11; 14; 58; 210. Genes, 218,209; 1,437; 26.3; 7; 9; 48; 125. Florence, 196,865; 1,095; 22.2; 3; 6; 36; 113. Venice, 167,074; 1,070; 25.6; 6; 15; 54; 86. Bologne, 152,042; 873; 23.0; 7; 5; 32; 76. Brescia, 70,737; 597; 33.7; 2; 17; 58; —. Madrid, 491,595; 3,921; 31.8; 58; 49; 342; 404. Lisbon, 338,587; 2,563; 30.2; 24; 14; 115; 287. Le Caire, 534,677; 3,948; 29.6; 72; 30; 468; 338. Alexandria, 273,653; 2,112; 30.8; 28; 8; 367; 210. Damiette, 31,285; 160; 20.4; 3; 1; 8; 10. Suez et Ismailia, 19,526; 125; 25.6; 2; —; 6; 10. Port Said, 30,773; 165; 21.4; 1; —; 28; 5. Mexico, 344,377; 4,296; 49.8; 145; 11; 612; 359. Montevideo, 249,-629; 987; 15.8; 21; 2; 161; 80. Bombay, 821,764; 24,021; 117.7; 13,352; —; 1,222; —.

BOOK REVIEWS.

ELEMENTS OF SANITARY ENGINEERING. By MANSFIELD MERRIMAN, Professor of Civil Engineering in Lehigh University. 8vo. Pp. 216. Price $2.00. New York: John Wiley & Sons. For sale by all booksellers. It is divided into five chapters: Sanitary Science, Water and Its Purification, Water Supply Systems, Sewerage Systems, and Disposal of Garbage and Sewage. These chapters are subdivided into sections, the first—introductory—summarizing the diseases, statistics of mortality, bacteriology, etc., their relations to the unclean conditions of the soil, air and water, and these conditions to sanitary engineering. The subsequent chapters are subdivided in like manner into the detail of their respective subjects. Each chapter closes with a section on "Exercises and Problems," a self-examination testing the fixation of the subjects treated of in the mind of the reader.

Though elementary, it is a book of like practical utility to the sanitary inspector, practical plumber and street cleaner, not one of whom can afford to do without such knowledge as this book comprehends, or can find the substance of it more cogently presented.

RELIGION AND LUST—THE PSYCHICAL CORRELATION OF RELIGIOUS EMOTION AND SEXUAL DESIRE. By JAMES WEIR, JR., M. D. 12mo. Pp. 338. Louisville, Ky.: The Author. A compilation of ignominious garblings from ancient fabrications, disgraceful to the author's credentials. Its evident purpose is to render Christianity odious.

GOULD'S POCKET PRONOUNCING MEDICAL DICTIONARY. New edition. Philadelphia: Prestley Blakeston's Son & Co. The best book of its kind and contains more than any other of its size; 3½x6 inches, half an inch thick; flexible binding; "over 21,000 words."

PHYSICIANS' VISITING LIST FOR 1899 (Lindsay & Blakiston's). Forty-eighth year of publication. Prices: For 25 patients per day or week, pencil pockets, etc., $1.00; 50 patients, $1.25; 50 do. in two vols., $2.00; 75 do., in two vols., $2.00; 100 do., in two vols., $2.25. Perpetual editions also, without dates, to be begun at any

time and used until full: 1,300 names, $1.25; 2,600 names, $1.50. Philadelphia: P. Blakiston's Son & Co. This List is so long and so favorably known that it needs no description. It will suffice to state that it maintains its excellence in all respects.

PUBLICATIONS RECEIVED.

Report of the Surgeon-General, United States Navy.

Quarter-Centennial Celebration of the Michigan State Board of Health. H. B. Baker, M. D., Secretary, Lansing, Mich.

Notes on Disinfectants and Disinfection. A. G. Young, M. D., Secretary State Board of Health, Augusta, Me.

Aseptic Animal Suture: Its Place in Surgery. Henry O. Marcy, M. D., Boston, Mass.

Renal Calculus. J. H. Musser, M. D., Philadelphia.

Meatless Dishes. Chicago Vegetarian, Chicago, Ill.

Turbinotomy—Method of Operating. R. P. Lincoln, M. D., New York.

Essentials of the Art of Medicine. J. H. Musser, M. D., Philadelphia.

Cremation, Disinfection, Sterilization. W. F. Morse, Engineer and Contractor, 287 Fourth Avenue, New York.

The Philadelphia Museums. William M. Watts, Secretary, Philadelphia.

Report on the Use of Formaldehyde as a Disinfectant. Drs. Park and Guerard, Bacteriological Bureau, Department of Health, New York.

Modern Treatment of Tuberculosis. Charles Denison, M. D., Denver, Col.

CONTEMPORARY LITERATURE.

THE COURTS AND SANITARY LAW.

There has always existed one very vital and fatal defect in the fundamental principle of sanitary law as interpreted by our courts, namely, that an evil condition must actually exist before a legal remedy can be applied. This has absolutely destroyed the efficacy of much of sanitary law. Power to cope with infectious disease after it has made its appearance is insufficient power. Modern sanitation calls for legal power to prevent conditions favorable to the outbreak or continuance of the disease; in other words, for

power to deal with the causes of the disease instead of with the disease itself; to close the stable, so to speak, before the horse is stolen. This is the power, *par excellence*, required by, and indispensable to, the health officer of to-day. Thousands of human lives, millions of dollars, and untold happiness would be the reward of the American people, if the health authorities throughout the country were clothed with legal powers to act when, in their judgment, it appeared necessary, instead of being compelled to wait until infectious disease actually made its appearance, before taking measures to combat it.—From "National Public Health Legislation," by U. O. B. Wingate, M. D., Secretary of the Wisconsin State Board of Health, in "North American Review" for November.

THE ASIATIC ORIGIN OF THE AMERICAN RACE.

There are two propositions involved in the controversy as to the Asiatic origin of the American race. The one is that America was peopled from Asia by invasions or migrations in pre-savage or preglacial times; the other is that the peculiar civilization of Central America was induced by Buddhist monks, who traveled from Asia to Mexico and Central America in the fifth century of our era. Those who sustain the first thesis are without exception men trained in the science of anthropology; those who sustain the second thesis are with a few conspicuous exceptions travelers, geographers, sinologues, missionaries, and the like.

If Asia should ever prove to be the cradle of the human race, or of any portion of it which had advanced well beyond the creature known as *Pithecanthropus erectus*, then unquestionably an Asian people may be accounted the progenitors of the American Indians. Any effort, however, to establish an identity at this stage would probably take us far beyond the origin of speech or the ability to fabricate an implement.—From "Was Middle America Peopled from Asia?" by Prof E. S. Morse, in Appleton's "Popular Science Monthly" for November.

"YANKEE PIGS."

Captain Charles D. Sigsbee has written his "Personal Narrative of the Maine" for the "Century's" new war series. The first part of the narrative appears in the November "Century." Captain Sigsbee says, in writing of his visit to a bull-fight just out of Havana:

As we emerged from the train and passed out of the station on our arrival at Havana, I was handed by somebody (I think by one of the newspaper correspondents) the bellicose circular which has since been published in the newspapers. It was a small printed slip containing a protest to the public against submission to a visit from the Maine, and, translated, reads as follows:

"'SPANIARDS!

"'LONG LIVE SPAIN WITH HONOR!

"'What are you doing that you allow yourselves to be insulted in this way? Do you not see what they have done to us in withdrawing our brave and beloved Weyler, who at this very time would have finished with this unworthy, rebellious rabble who are trampling on our flag and on our honor?

"'Autonomy is imposed on us to cast us aside and give places of honor and authority to those who initiated this rebellion, these low-bred autonomists, ungrateful sons of our beloved country!

"'And, finally, these Yankee pigs who meddle in our affairs, humiliating us to the last degree, and, for a still greater taunt, order to us a man-of-war of their rotten squadron, after insulting us in their newspapers with articles sent from our own home!

"'Spaniards! the moment of action has arrived. Do not go to sleep! Let us teach these vile traitors that we have not yet lost our pride, and that we know how to protest with the energy befitting a nation worthy and strong, as our Spain is, and always will be!

"'Death to the Americans! Death to autonomy!

"'Long live Spain! Long live Weyler!'"

AN ANTI-VACCINATIONIST AT LARGE.

If we do not continue to be so engrossed in the elucidation of such perplexities as boss rule, the canal frauds, expansion, the apportionment of the glory of San Juan, and the distribution of our fruits of victory, that we have no attention to spare for other problems, it is possible that we may find the vaccination question urged upon our attention with energy enough to make some public stir. Mr. William Tebb, an eminent British anti-vaccinationist, is going about among us, implanting in receptive minds distrust of the value and appreciation of the drawbacks of Jenner's discovery. He has been one of the leaders of the great and recently successful fight against compulsory vaccination in England, and as he has been studying and fighting against vaccination for

twenty-five years, he has accumulated a lot of ammunition for his crusade. Orthodox persons who accept vaccination as confidently as though its efficacy were specified in the Shorter Catechism will be surprised to find what a respectable appearance of a case can be made against it, while, of course, to make a case against compulsory vaccination is no trick at all.

Mr. Tebb was last heard of in Boston, and intends to stay long and travel widely in this country, gathering fresh information and sowing seeds of rebellion and distrust of medical authorities in the minds of the people.—E. S. Martin, in "Harper's Weekly."

A WOUNDED CORRESPONDENT AT SANTIAGO.

On the night after the battle, while we lay on the sloping field after a soaking by cold tropical rain, we saw and heard the night assault of the Spanish army which came from Santiago, which came to dislodge our army from the positions it had taken. The sound of the infantry firing was simply damnable. We could see all along the line the flashing of the cannon fire. As our hospital camp was cut off from the rest of the army, we had no one to tell us what was happening. The scene was magnificently terrible. As the fire rolled and rolled it seemed to us that the fight was coming closer and closer to our position. Gradually a rumor spread from litter to litter that our line had been forced. We all knew what that meant—death without mercy. It is hardly possible to conceive of a more horrible situation than ours. We were helpless and felt that a ruthless enemy was upon us. Suddenly the firing ceased. We spent most of the night silently wondering whether our army had been defeated and what daylight would reveal. At half past three o'clock in the morning the one surgeon in our camp woke us, and announced that he had been ordered to abandon the position immediately. Those who were injured in the legs would be carried; all others must walk or be abandoned. In reply to my question he said that he could not tell whether our army had been defeated or not. I knew what capture by Spaniards meant. I struggled to my feet, and, weak as I was, I walked, stumbling and crawling as best I could, over the hills and through the deep mud of the valleys. I fainted twice before I reached General Shafter's headquarters, where several correspondents carried me on a stretcher to the divisional hospital. Here I had the bones of my arm set and my wound thoroughly dressed. The

next day I was tied on to a horse and held on the saddle for nine miles until I reached Siboney, on the coast. Here I lay two days in great pain. Beside me lay another civilian down with yellow fever; then Mr. Hearst took me on his private steamer, and I was brought back to New York.—From "My Experiences at Santiago," by James Creelman, in the "American Monthly Review of Reviews" for November.

THE ARMY INVESTIGATION.

It is altogether too early to say that the investigation of army administration will turn out valueless. There are some officers of volunteers who apparently are too grateful for their commissions, but their ignorance or blindness cannot possibly overcome the effect of authentic stories of hardship, cruelty, indifference and incapacity which have come to us from officers of the line and from the men. General F. V. Greene struck a true note the other day in his testimony when he said that the army was organized for peace, and could not move in an emergency. Major Gallagher also told some wholesome truths about the inefficiency of civilian officers and the inadequacy and unfitness of the rations. The fact is that no testimony like that of General Wheeler, intended to show that conditions were good, can square with the reports of the general and other officers from the field, nor with the effort of the heads of the War Department to turn the blame of the hasty movement from Tampa upon Admiral Sampson and the navy. It will be impossible for General Shafter and those who are supporting him to make the country believe that the navy, which did everything itself so well, is responsible for his own incapacity, or for the incapacity and ignorance of the men under whose immediate orders he was. If they are to try this experiment, it will be, as an officer of the navy has already remarked, a very dangerous one for them.—"Harper's Weekly."

The leading features of HARPER'S MAGAZINE for November are: "Torpedo-boat Service," by Lieutenant J. C. Fremont, commanding the Porter, illustrated by H. Reuterdahl; "Bismarck," by Sidney Whitman, with an engraving by E. Schladitz of a hitherto unpublished portrait; "With the Fifth Corps," by Frederic Remington, illustrated by the author; "Our Seaboard Islands on the Pacific," by John E. Bennett, richly illustrated by drawings by Orson Lowell, Henry McCarter and Harry Fenn; "Social Life

in the British Army," Third Paper, by A British Officer, illustrated by R. Caton Woodville; "Eastward Expansion of the United States," by Archibald R. Colquhoun; and "Some Recent Explorations," by J. Scott Keltie, LL.D., Sec. R. G. S.

THE POEMS OF THE CHRISTMAS NUMBER OF HARPER'S are appropriate to the season. In addition to "The Martyr's Idyl," a dramatic poem founded on a legend of the early Christian Church, by Louise Imogen Guiney, illustrated by E. Grasset, the number contains, among others, "Mary," by Ruth McEnery Stuart, and "Ere Christ, the Flower of Virtue, Bloomed," by Louise Morgan Sill, illustrated by F. V. Du Mond; and "A Ballad of Manila Bay," by Charles G. D. Roberts, with an illustration by Carlton T. Chapman.

ST. NICHOLAS begins a new volume with its November number and celebrates its twenty-fifth birthday. In honor of this anniversary the magazine dons a special cover, bearing a birthday cake decorated with twenty-five candles. Notwithstanding its quarter of a century of existence, "St. Nicholas" is just as young as ever in spirit. A new Henty serial is begun, a tale of American history, that will be one of the features of the coming year. It is called "The Sole Survivors," and it deals with the struggles of an early Virginia colony with the Indians. E. H. House is to contribute a series of papers on "Bright Sides of History," dealing with amusing episodes in ancient and modern history. These are given in the course of a story, which tells of the sayings and doings of a party of clever boys and girls.

The leading features of the AMERICAN MONTHLY REVIEW OF REVIEWS for November are: The editorial comment on the State and Congressional campaigns (illustrated); an illustrated account of the work of the Y. M. C. A. in connection with the army and navy during the war with Spain, by Albert Shaw; an article on "The Newspaper Correspondents in the War," with numerous portraits; Mr. Creelman's own story of his Santiago adventures; "Ouida's" "Impeachment of Modern Italy," with Signor Vecchia's reply; "The Nicaragua Canal in the Light of Present Politics," by Prof. L. M. Keasbey; and "The Nicaragua Canal and Our Commercial Interests," by Dr. Emory R. Johnson.

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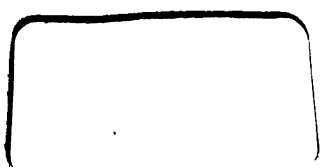
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